

<b>SOLICITATION/CONTRACT/ORDER FOR COMMERCIAL ITEMS</b> <i>OFFEROR TO COMPLETE BLOCKS 12, 17, 23, 24, &amp; 30</i>				1. REQUISITION NUMBER PR-OAR-18-00775		PAGE OF 1 3		
2. CONTRACT NO. EP-W-16-015		3. AWARD/ EFFECTIVE DATE 07/09/2018		4. ORDER NUMBER 68HE0H18F1540		5. SOLICITATION NUMBER		
6. SOLICITATION ISSUE DATE								
7. <b>FOR SOLICITATION INFORMATION CALL:</b>		a. NAME Michael Fox			b. TELEPHONE NUMBER (No collect calls) 202-564-2550		8. OFFER DUE DATE/LOCAL TIME ET	
9. ISSUED BY HPOD US Environmental Protection Agency William Jefferson Clinton Building 1200 Pennsylvania Avenue, N. W. Mail Code: 3803R Washington DC 20460				10. THIS ACQUISITION IS <input checked="" type="checkbox"/> UNRESTRICTED OR <input type="checkbox"/> SET ASIDE: % FOR:  <div style="display: flex; justify-content: space-between;"> <div> <input type="checkbox"/> SMALL BUSINESS  <input type="checkbox"/> HUBZONE SMALL BUSINESS  <input type="checkbox"/> SERVICE-DISABLED VETERAN-OWNED SMALL BUSINESS </div> <div> <input type="checkbox"/> WOMEN-OWNED SMALL BUSINESS (WOSB) ELIGIBLE UNDER THE WOMEN-OWNED SMALL BUSINESS PROGRAM  <input type="checkbox"/> EDWOSB  <input type="checkbox"/> 8(A) </div> <div> NAICS: 541620   SIZE STANDARD: \$15.0 </div> </div>				
11. DELIVERY FOR FOB DESTINATION UNLESS BLOCK IS MARKED <input checked="" type="checkbox"/> SEE SCHEDULE		12. DISCOUNT TERMS		13a. THIS CONTRACT IS A RATED ORDER UNDER DPAS (15 CFR 700) <input type="checkbox"/>		13b. RATING		
15. DELIVER TO OAR/OAP US Environmental Protection Agency 1200 Pennsylvania Avenue NW Mail Code: 62101J OAR/OAP Washington DC 20460		16. ADMINISTERED BY HPOD US Environmental Protection Agency William Jefferson Clinton Building 1200 Pennsylvania Avenue, N. W. Mail Code: 3803R Washington DC 20460		14. METHOD OF SOLICITATION <input type="checkbox"/> RFQ <input type="checkbox"/> IFB <input type="checkbox"/> RFP				
17a. CONTRACTOR/OFFEROR CODE 038086125		FACILITY CODE		18a. PAYMENT WILL BE MADE BY RTP FMC				
WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS, INC. Attn: JOSEPH FARRELL 751 Arbor Way Ste 180 Blue Bell PA 194221972  (b)(4) TELEPHONE NO.				RTP Finance Center US Environmental Protection Agency RTP-Finance Center (AA216-01) 109 TW Alexander Drive www2.epa.gov/financial/contracts Durham NC 27711				
<input type="checkbox"/> 17b. CHECK IF REMITTANCE IS DIFFERENT AND PUT SUCH ADDRESS IN OFFER				<input type="checkbox"/> 18b. SUBMIT INVOICES TO ADDRESS SHOWN IN BLOCK 18a UNLESS BLOCK BELOW IS CHECKED <input type="checkbox"/> SEE ADDENDUM				
19. ITEM NO.	20. SCHEDULE OF SUPPLIES/SERVICES			21. QUANTITY	22. UNIT	23. UNIT PRICE	24. AMOUNT	
	DUNS Number: 038086125 IGF::OT::IGF This task order is issued in accordance with Task Order Ordering Procedures and hereby incorporates the base contract terms and conditions by reference. The effective date for performance to commence is July 9, 2018.  The Contractor shall perform in accordance with the Attachment A Statement of Work (7 pages) and the accepted technical proposal and cost estimate <i>(Use Reverse and/or Attach Additional Sheets as Necessary)</i>							
25. ACCOUNTING AND APPROPRIATION DATA See Schedule						26. TOTAL AWARD AMOUNT (For Govt. Use Only) \$68,720.00		
<input type="checkbox"/> 27a. SOLICITATION INCORPORATES BY REFERENCE FAR 52.212-1, 52.212-4, FAR 52.212-3 AND 52.212-5 ARE ATTACHED. ADDENDA <input checked="" type="checkbox"/> 27b. CONTRACT/PURCHASE ORDER INCORPORATES BY REFERENCE FAR 52.212-4, FAR 52.212-5 IS ATTACHED. ADDENDA						<input type="checkbox"/> ARE <input type="checkbox"/> ARE NOT ATTACHED. <input type="checkbox"/> ARE <input checked="" type="checkbox"/> ARE NOT ATTACHED.		
<input type="checkbox"/> 28. CONTRACTOR IS REQUIRED TO SIGN THIS DOCUMENT AND RETURN COPIES TO ISSUING OFFICE. CONTRACTOR AGREES TO FURNISH AND DELIVER ALL ITEMS SET FORTH OR OTHERWISE IDENTIFIED ABOVE AND ON ANY ADDITIONAL SHEETS SUBJECT TO THE TERMS AND CONDITIONS SPECIFIED.				<input type="checkbox"/> 29. AWARD OF CONTRACT: _____ OFFER DATED _____. YOUR OFFER ON SOLICITATION (BLOCK 5), INCLUDING ANY ADDITIONS OR CHANGES WHICH ARE SET FORTH HEREIN, IS ACCEPTED AS TO ITEMS:				
30a. SIGNATURE OF OFFEROR/CONTRACTOR				31a. UNITED STATES OF AMERICA (SIGNATURE OF CONTRACTING OFFICER)				
30b. NAME AND TITLE OF SIGNER (Type or print)		30c. DATE SIGNED		31b. NAME OF CONTRACTING OFFICER (Type or print)		31c. DATE SIGNED		
				Michael C. Fox				

19. ITEM NO.	20. SCHEDULE OF SUPPLIES/SERVICES	21. QUANTITY	22. UNIT	23. UNIT PRICE	24. AMOUNT
0001	<p>dated May 25, 2018 (12 pages) in the amount of \$68,720.00.</p> <p>This is a Time-and-Materials (T&amp;M) task order with a total ceiling price of \$68,720.00, which the Contractor is not authorized to exceed. The Contractor exceeds at its own risk.</p> <p>The total obligated/funded ceiling amount for this order is currently \$15,000.00. This order is incrementally funded as detailed in Attachment B Summary of Amounts and Ceilings and Attachment B is hereby incorporated (1 page).</p> <p>Contracting Officer's Representative (COR): Melissa Puchalski, (202) 343-9882, Puchalski.Melissa@epa.gov</p> <p>Alternate COR: Taylor Macy, (202) 343-9183, Macy.Taylor@epa.gov</p> <p>The services of this order are for severable. TOCOR: Melissa Puchalski Period of Performance: 07/09/2018 to 07/08/2019</p> <p>Supplemental Monitoring Studies at CASTNET Sites in Support of the NOx SOx Secondary Standard</p> <p>Accounting Info: Continued ...</p>				

32a. QUANTITY IN COLUMN 21 HAS BEEN

☐ RECEIVED    ☐ INSPECTED    ☐ ACCEPTED, AND CONFORMS TO THE CONTRACT, EXCEPT AS NOTED: \_\_\_\_\_

32b. SIGNATURE OF AUTHORIZED GOVERNMENT REPRESENTATIVE		32c. DATE	32d. PRINTED NAME AND TITLE OF AUTHORIZED GOVERNMENT REPRESENTATIVE	
32e. MAILING ADDRESS OF AUTHORIZED GOVERNMENT REPRESENTATIVE			32f. TELEPHONE NUMBER OF AUTHORIZED GOVERNMENT REPRESENTATIVE	
			32g. E-MAIL OF AUTHORIZED GOVERNMENT REPRESENTATIVE	
33. SHIP NUMBER	34. VOUCHER NUMBER	35. AMOUNT VERIFIED CORRECT FOR	36. PAYMENT  <input type="checkbox"/> COMPLETE <input type="checkbox"/> PARTIAL <input type="checkbox"/> FINAL	37. CHECK NUMBER
<input type="checkbox"/> PARTIAL <input type="checkbox"/> FINAL				
38. S/R ACCOUNT NUMBER	39. S/R VOUCHER NUMBER	40. PAID BY		
41a. I CERTIFY THIS ACCOUNT IS CORRECT AND PROPER FOR PAYMENT		42a. RECEIVED BY ( <i>Print</i> )		
41b. SIGNATURE AND TITLE OF CERTIFYING OFFICER		41c. DATE	42b. RECEIVED AT ( <i>Location</i> )	
			42c. DATE REC'D (YY/MM/DD)	42d. TOTAL CONTAINERS



NAME OF OFFEROR OR CONTRACTOR  
WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS, INC.

ITEM NO. (A)	SUPPLIES/SERVICES (B)	QUANTITY (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)
	18-19-C-58D5-000A45-2505-1858DC8055-001 BFY: 18 EFY: 19 Fund: C Budget Org: 58D5 Program (PRC): 000A45 Budget (BOC): 2505 DCN - Line ID: 1858DC8055-001 Funding Flag: Complete Funded: \$15,000.00				

## **ATTACHEMENT A**

### **Statement of Work**

**Title:** Supplemental Monitoring Studies at CASTNET Sites in Support of  
the NOx/SOx Secondary Standard

**Contract #:** EP-W-16-015

**Project #:** 2010

**Period of Performance:** 7/9/2018 to 7/8/2019

### **EPA Key Personnel**

#### **Task Order Project Officer (TOPO)/Contract Level Project Officer (PO):**

Melissa Puchalski  
Clean Air Markets Division (OAP/OAR/CAMD)  
1200 Pennsylvania Ave., NW  
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Washington, DC 20460  
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#### **Alternate TOPO:**

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*phone:* (202) 343-9183  
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#### **Contracting Officer (CO):**

Michael Fox  
Contracting Officer  
Administrative Contract Service Center  
1200 Pennsylvania Ave N.W.  
Mail Code 3803R  
Washington DC 20460  
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## STATEMENT OF WORK

### I. INTRODUCTION

The Clean Air Status and Trends Network (CASTNET) is a long-term environmental monitoring network that measures changes in ambient air quality and assesses atmospheric deposition over broad geographic regions of the U.S. (<https://www.epa.gov/castnet>). Operating since 1987, CASTNET has evolved into a robust regional monitoring program which currently consists of approximately 95 monitoring stations nationwide. The Environmental Protection Agency (EPA) coordinates the operation of the network in cooperation with numerous federal, tribal, state and local partners.

The primary monitoring objectives of CASTNET are to:

- Provide high quality data on atmospheric deposition, rural ground level ozone and other forms of atmospheric pollution;
- Support the primary and secondary ozone NAAQS and provide data on NAAQS compliance in rural areas;
- Monitor the status and trends in regional air quality and atmospheric deposition;
- Assess and report on geographic patterns and long-term, temporal trends in ambient air pollution and atmospheric deposition;
- Improve our understanding of PM and ozone formation;
- Validate and improve atmospheric models;
- Provide data for health-based research and epidemiology studies;
- Assess the effectiveness of EPA's emission reduction programs; and
- Support science and ecosystem studies.

CASTNET sites measure weekly average concentrations of sulfate ( $\text{SO}_4^{2-}$ ), nitrate ( $\text{NO}_3^-$ ), ammonium ( $\text{NH}_4^+$ ), sulfur dioxide ( $\text{SO}_2$ ), nitric acid ( $\text{HNO}_3$ ), chloride ( $\text{Cl}^-$ ) and the base cations ( $\text{Na}^+$ ,  $\text{K}^+$ ,  $\text{Mg}^{2+}$  and  $\text{Ca}^{2+}$ ) using a 3-stage filter pack. In addition, each site may make ancillary measurements, including hourly ozone ( $\text{O}_3$ ), hourly meteorology, ammonia ( $\text{NH}_3$ ) gas using passive devices, and trace-level gases. Trace-level gas monitors include reactive oxidized nitrogen ( $\text{NO}_y$ ), nitric oxide ( $\text{NO}$ ), sulfur dioxide ( $\text{SO}_2$ ) and carbon monoxide ( $\text{CO}$ ). CASTNET  $\text{O}_3$ , meteorological, and trace gas measurements follow the requirements in the Code of Federal Regulations (CFR) and EPA's Quality Assurance Handbook.

### II. PURPOSE

The primary purpose of this task order is to improve the science and understanding of deposition process within the atmosphere. The EPA is currently evaluating the secondary National Ambient Air Quality Standard (NAAQS) for  $\text{NO}_x$  and  $\text{SO}_x$ . The work under this task will enhance the existing research currently available on direct deposition methods, atmospheric chemical processes that drive deposition parameters and estimates of sulfur and nitrogen loading to various landscapes. This research is a collaborative effort between EPA's Office of Air and Radiation (OAR), the Office of Research and Development (ORD), and other federal partners. This is a follow-on task order from the previous option periods.

Under this task order the contractor will continue to operate the enhanced  $\text{NO}_y$  analyzer at the Duke Forest flux tower site located in North Carolina. The enhanced  $\text{NO}_y$  analyzer will operate at the Duke Forest tower site through June 2019 as part of a larger reactive nitrogen flux study. Results from the enhanced  $\text{NO}_y$  analyzer will be compared to the MARGA, CASTNET filter pack, and passive samplers.

Also under this task order, the contractor will continue collecting the site characterization dataset for 3 co-located CASTNET/AMoN sites. The dataset shall contain information about the soil and vegetation characteristics within 1km of each AMoN site. The contractor shall collect soil and vegetation samples at approximately 15 locations at each site for laboratory analysis. A bi-direction flux box model will be run using the site characterization information as input to calculate NH<sub>3</sub> fluxes at each site. The three sites where measurements shall be made are Bondville, IL (BVL130), Duke Forest, NC (DUK008), and Chiricahua National Monument, AZ (CHA467). Under the previous option period field sampling was completed for the fall, winter and spring seasons. Sampling under this task order will complete the summer sampling at each of the 3 sites. Under this task order work will continue on the data analysis and preparation for modeling NH<sub>3</sub> deposition.

### **III. CONTRACT LEVEL STATEMENT OF WORK REFERENCE**

The tasks to be performed under this task order are consistent with the activities authorized in CLIN 22 of the contract's Statement of Work.

### **IV. TECHNICAL DIRECTION**

#### **1. Prepare a Technical Proposal & Cost Estimate**

The Contractor shall prepare a Task Order Proposal in accordance with the terms and conditions of contract clauses B.2 entitled Fixed Rates for Services – Indefinite delivery/Indefinite quantity contract.

#### **2. Operate, Calibrate, and Quality Assure the Enhanced-NO<sub>y</sub> Measurement System**

The Contractor shall continue operating the enhanced-NO<sub>y</sub> measurement system at the Duke Forest Flux Tower site (DUK008) which is co-located with a CASTNET filter pack. Operation includes routine calibrations, remote troubleshooting, QA, and data reporting. The operation of the standard NO<sub>y</sub> system and the CASTNET filter pack is covered under Task Order 2003 Base Program Operations. Hourly measurements from the enhanced NO<sub>y</sub> system include NH<sub>x</sub>, TN<sub>x</sub>, true NO<sub>2</sub>, NO<sub>y</sub>, NO, and HNO<sub>3</sub>. At the Duke Forest site, the enhanced NO<sub>y</sub> inlet is placed above the forest canopy on the 150ft tower.

Data from the enhanced NO<sub>y</sub> measurement system shall be delivered to CAMD daily with the routine CASTNET submittals. Quality assured data shall be submitted to CAMD monthly, 90 days after data collection.

Under this task the contractor shall also continue testing the converters for a configuration that provides the most reliable, accurate data as compared to the CASTNET filterpack, AMoN and MARGA system at Duke Forest. Further testing on the calibration system is also expected.

This task includes 4 repair trips for the enhanced NO<sub>y</sub> measurement system that shall only be used as necessary.

#### **3. Ammonia Flux Site Characterization Database**

The contractor installed measurement systems to collect soil moisture and temperature, 3D wind direction, and CASTNET meteorology at three CASTNET sites to develop a database of site characteristics for modeling the bi-directional flux of NH<sub>3</sub> under Task Orders 0010 and 1010. The contractor also visited each site to collect soil and vegetation samples for analysis. This task is a continuation of this work. The contractor shall complete the seasonal sampling – with one final site visit to Bondville to complete summer soil and vegetation sampling. Additionally, the contractor shall continue to collect hourly meteorological measurements and poll the data

remotely through July 2018. Meteorological measurements will be covered under Task Order 2003 Base Program.

After final sampling, the contractor shall provide EPA with a final data set that can be used to model deposition fluxes at the 3 monitoring sites. The final data set shall be documented and published on the EPA website. The contractor shall estimate labor hours for producing a final summary report on the field sampling campaign.

A description of the field measurements is included below. Only one final sampling campaign will take place under this task order.

Soil moisture and temperature sensors and sonic anemometers were installed under Task Order 0010. Sonic anemometer measurements of 3-dimensional wind (vectors  $u$ ,  $v$ ,  $w$ ) and temperature shall be recorded at 10 Hertz. The contractor shall continue to run a post-processing package to perform data filtering, coordinate rotations, calculations of 30 minute or hourly turbulence statistics and apply QA metrics from the sonic anemometer.

Hourly data shall be stored in Oracle and submitted to CAMD daily. Quality assured results shall be submitted 90 days after measurements are recorded or analyzed.

This task also includes removing the soil moisture meter, meteorological equipment and data loggers once the study is over. The contractor may request that the site operators or calibrators remove the equipment if appropriate.

EPA has provided the contractor with sampling locations within a 1-km radius of each site. The locations were selected based on soil and vegetation type as reported in national online databases. The contractor shall use the sample locations as a guide when collecting the soil and vegetation samples, keeping in mind that the goal is to collect the dominate species and/or soil type.

Sample measurements and schedules are included in Table 1. The measurements are labeled to indicate if the contractor shall be responsible for the cost of the measurement. A brief description of the measurements that the contractor will be collecting is found below.

Approximately 30 composite soil samples will be collected from 15 locations and analyzed at the BVL130 site. At each of the 15 locations, 5 soil cores will be collected with a 1-m by 1-m plot. The sample depth will capture the organic (O), topsoil (A), and subsoil (B) horizons. Individual cores shall be separated into the three horizons and the five replicate samples shall be composited by horizon and measurement location generation a total of 15 O-horizon and 15 A-horizon samples per pilot site per season. Soil shall be immediately stored under refrigeration and extracted within 72 hours. Samples shall be analyzed for extractable  $\text{NH}_4^+$  and pH. For the  $\text{NH}_4^+$  analysis, five grams of field moist soil shall be extracted in 20 g of 0.01 molar  $\text{CaCl}_2$  following standard protocols. Samples shall be analyzed by ion chromatography (IC) or colorimetry by the chosen laboratory. Direct determination of pH shall be performed on a 1:5 fresh soil/water slurry. Soil gravimetric moisture shall be determined by weight loss after heating 25 g of soil for 24 hours at 105 degrees Celsius (C).

Leaf litter shall be collected on the soil surface in the sample 15 locations as the soil samples were taken. Leaf litter, where available, shall be collected seasonally. Approximately 50 g of leaf litter shall be collected within the 1x1m soil sampling location.

Green leaves shall be sampled at BVL130 from three to five individual trees/shrubs/crops representing the dominate species at approximately the same locations where soil samples were collected. Litter and leaf



samples shall immediately be stored under refrigeration. Bulk green leaf and litter samples shall be subsampled for analysis of moisture, total nitrogen (N), and  $\text{NH}_4^+$ . For the  $\text{NH}_4^+$  analysis, fresh material shall be ground in liquid nitrogen and 5 g of material shall be extracted in 20 mL of deionized water. Extractions shall take place within 72 hours of collections. Extracts shall be analyzed for  $\text{NH}_4^+$  by IC or colorimetry. For total N analyses, material shall be dried, ground and analyzed for total N via combustion/elemental analysis. Moisture content shall be determined by weight loss after drying at 60 degrees C to a constant weight. For costing, the contractor shall assume that the upper and lower canopy and individual tree samples shall be bulked for analysis such that each visit will result in 15 samples.

Leaf area index (LAI) shall be measured at seasonally at approximately 15 locations. The contractor shall use the LAI 2000 plant canopy analyzer that was procured by EPA/ORD. LAI sampling locations shall correspond with soil and vegetation sampling locations where possible.

<b>Measurement Frequency</b>	<b>Measurement</b>	<b>Time period</b>	<b>Notes</b>	<b>BVL130</b>	<b>DUK008</b>	<b>CHA467</b>
<i>Initial Measurement (or 1-time measurement)</i>	<i>Canopy Height<sup>1</sup></i>	<i>Dominate species at start and end of study</i>	<i>LIDAR</i>	<i>LIDAR data exists<sup>1</sup>, but we need to take measurements of crop canopy height<sup>2</sup></i>	<i>Existing<sup>1</sup></i>	<i>Needed<sup>1</sup></i>
	<i>Vegetation characterization – species type, percentage of each species<sup>1</sup></i>	<i>LANDFIRE plots at start of study</i>	<i>LANDFIRE</i>	<i>Existing<sup>1</sup>, but we need to know what crops are planted<sup>1,2</sup></i>	<i>Existing<sup>1</sup></i>	<i>Existing<sup>1</sup></i>
	<i>Vegetation species density – stems per m<sup>2</sup> or ha<sup>2</sup></i>	<i>Peak leaf out</i>	<i>LIDAR measurements</i>	<i>Needed<sup>2</sup></i>	<i>Needed<sup>2</sup></i>	<i>Needed<sup>2</sup></i>
	<i>Surface albedo<sup>1</sup></i>	<i>Initial</i>	<i>Remote sensing data</i>	<i>Existing<sup>1</sup></i>	<i>Existing<sup>1</sup></i>	<i>Existing<sup>1</sup></i>
	<i>Hydrological group<sup>1</sup></i>	<i>Initial</i>	<i>NRCS WSS</i>	<i>Existing<sup>1</sup></i>	<i>Existing<sup>1</sup></i>	<i>Existing<sup>1</sup></i>
	<i>Quality Rating<sup>1</sup></i>	<i>Initial</i>	<i>NRCS WSS</i>	<i>Existing<sup>1</sup></i>	<i>Existing<sup>1</sup></i>	<i>Existing<sup>1</sup></i>
	<i>Soil Type – type, percentage of each species<sup>1</sup></i>	<i>Initial</i>	<i>NRCS WSS</i>	<i>Existing<sup>1</sup></i>	<i>Existing<sup>1</sup></i>	<i>Existing<sup>1</sup></i>
	<i>Soil Characteristics – bulk density, sand/silt/clay, wilt point, field capacity, depth to impervious layer, rooting depth<sup>1</sup></i>	<i>Initial</i>	<i>NRCS WSS</i>	<i>Existing<sup>1</sup></i>	<i>Existing<sup>1</sup></i>	<i>Existing<sup>1</sup></i>

	Age of Plot <sup>1</sup>	Initial	Ag – how many years has plot been cultivated, forest – when was stand last cleared?	Existing <sup>1</sup>	Existing <sup>1</sup>	?
	Overall slope of site <sup>1</sup>		NRCS WSS	Existing <sup>1</sup>	Existing <sup>1</sup>	Existing <sup>1</sup>
Seasonal	LAI Profiles <sup>2</sup>	Coincide with soil/litter sampling. Measurements at leaf out, peak LAI, senescence, and minimum LAI	Li-COR LAI 2200C	Take measurement at 15 locations <sup>2</sup>	Take measurements at 15 locations <sup>2</sup>	Take measurements at 15 locations <sup>2</sup>
	Bulk leaf tissue pH, total [N] and [NH <sub>4</sub> <sup>+</sup> ] <sup>2</sup>	Seasonally	Dominant species, 4 trees at each location	Take measurements at 15 sites <sup>2</sup>	Take measurements at 15 sites <sup>2</sup>	Take measurements at 15 sites <sup>2</sup>
	Litter – depth, composition, pH, total [N] and [NH <sub>4</sub> <sup>+</sup> ] <sup>2</sup>	After leaf drop	Dominant species at soil measurement sites. Same analysis as bulk leaf tissue.	Take measurements at 15 sites <sup>2</sup>	Take measurements at 15 sites <sup>2</sup>	Take measurements at 15 sites <sup>2</sup>
	Soil chemistry (pH, [NH <sub>4</sub> <sup>+</sup> ], and [NO <sub>3</sub> <sup>-</sup> ]) <sup>2</sup>	Seasonally, coincide with vegetation samples	Top two horizons – typically the O (organic) and A (topsoil) horizons for dominant soils/vegetation locations.	Take measurements at 15 sites <sup>2</sup>	Take measurements at 15 sites <sup>2</sup>	Take measurements at 15 sites <sup>2</sup>
Hourly	Soil characteristics (moisture, temperature) <sup>2</sup>	Hourly measurements at 1 location	Locations depend on soil types, vegetation and site slope Temperature probe Campbell Scientific 107 Soil moisture Campbell scientific Soil H <sub>2</sub> O content reflectometer CS650	Take measurement at AMoN site <sup>2</sup>	Take measurement at AMoN site <sup>2</sup>	Take measurement at AMoN site <sup>2</sup>

	<i>Meteorology<sup>2</sup></i>	<i>Hourly, 10 Hz temperature and 3d wind vectors</i>	<i>Standard suite of CASTNET measurements.</i>	<i>Take measurement at AMoN site<sup>2</sup></i>	<i>Take measurement at AMoN site<sup>2</sup></i>	<i>Take measurement at AMoN site<sup>2</sup></i>
--	--------------------------------	--	--	--	--	--

<sup>1</sup>EPA will provide measurement or data, <sup>2</sup> Amec Foster Wheeler shall provide collected data

The contractor shall include a technical proposal and cost estimate for the measurements listed above.

## V. DELIVERABLES AND SCHEDULE

### 1. Proposal

The contractor shall deliver a Task Order Technical Proposal & Cost Estimate in accordance with clause B.7 Task Order Ordering Procedures of the contract. The proposal shall be submitted 10 days after receipt of the SOW.

### 2. Monthly Progress Report

The contractor shall prepare and submit a monthly progress report by the 15<sup>th</sup> of each month summarizing the progress made, issues encountered or expected, work planned for the next reporting period and costs. These reports shall comply with contract clauses F.1, Monthly Progress Report, and F-5, Reports of Work. Reports shall be delivered electronically.

### 3. Database

The contractor shall deliver a database with valid data and all QA/QC data reported during the field campaign. The database shall be delivered 90 days after the final measurement is taken.

### 4. Publication

Within 6-months after the final sample is collected, the contractor shall work with the TOPOs and technical advisors to prepare an EPA summary report.

#### Distribution of Deliverables:

Addressee	Copies
EPA Contracting Officer (Mike Fox)	1
EPA Project Officer (Melissa Puchalski)	1
EPA Alternate (Taylor Macy)	1
EPA Technical Advisors (Ralph Baumgardner and John Walker)	1

**ATTACHMENT B**  
**SUMMARY OF TASK ORDER OBLIGATION/CEILING AMOUNTS**

Total Funding/Obligation Amounts			
Period	Previous Amount	This Action	Amount
Base Period	-	\$15,000.00	\$15,000.00
<b>Total</b>	-	<b>\$15,000.00</b>	<b>\$15,000.00</b>

Total Task Order Ceiling			
Period	Previous Amount	This Action	Amount
Base Period	-	\$68,720.00	\$68,720.00
<b>Total</b>	-	<b>\$68,720.00</b>	<b>\$68,720.00</b>

**Note:** This task order is incrementally funded in accordance with contract clause B.5 Limitation of Government's Obligation (EPA-B-32-103).

<b>AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT</b>				1. CONTRACT ID CODE		PAGE OF PAGES	
						1      2	
2. AMENDMENT/MODIFICATION NO.		3. EFFECTIVE DATE		4. REQUISITION/PURCHASE REQ. NO.		5. PROJECT NO. (If applicable)	
P00001		See Block 16C		PR-OAR-18-01165		2010	
6. ISSUED BY		CODE		7. ADMINISTERED BY (If other than Item 6)		CODE	
HPOD							
US Environmental Protection Agency William Jefferson Clinton Building 1200 Pennsylvania Avenue, N. W. Mail Code: 3803R Washington DC 20460							
8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP Code)				(x)			
WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS, INC. Attn: JOSEPH FARRELL 751 Arbor Way Ste 180 Blue Bell PA 194221972							
				9A. AMENDMENT OF SOLICITATION NO.			
				9B. DATED (SEE ITEM 11)			
				x 10A. MODIFICATION OF CONTRACT/ORDER NO.			
				EP-W-16-015			
				68HE0H18F1540			
				10B. DATED (SEE ITEM 13)			
				06/28/2018			
CODE 038086125		FACILITY CODE					
<b>11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS</b>							
<input type="checkbox"/> The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers <input type="checkbox"/> is extended. <input type="checkbox"/> is not extended. Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods: (a) By completing Items 8 and 15, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGEMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.							
12. ACCOUNTING AND APPROPRIATION DATA (If required)				Net Increase:		\$35,000.00	
See Schedule							
<b>13. THIS ITEM ONLY APPLIES TO MODIFICATION OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.</b>							
CHECK ONE	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.						
	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).						
	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:						
X	D. OTHER (Specify type of modification and authority) FAR 52.232-22 Limitation of Funds						
<b>E. IMPORTANT:</b> Contractor <input checked="" type="checkbox"/> is not. <input type="checkbox"/> is required to sign this document and return _____ copies to the issuing office.							
14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)							
DUNS Number: 038086125							
The purpose of this modification is to obligate incremental funding in the amount of \$35,000.00 to this task order.							
This is a Time-and-Materials (T&M) task order with a total ceiling price of \$68,720.00, which the Contractor is not authorized to exceed. The Contractor exceeds at its own risk.							
The total obligated/funded ceiling amount for this order is currently \$50,000.00. This order is incrementally funded as detailed in Attachment B Summary of Amounts and Ceilings and Attachment B is hereby incorporated (1 page).							
TOCOR: Melissa Puchalski							
Continued ...							
Except as provided herein, all terms and conditions of the document referenced in Item 9 A or 10A, as heretofore changed, remains unchanged and in full force and effect.							
15A. NAME AND TITLE OF SIGNER (Type or print)				16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)			
				Michael C. Fox			
15B. CONTRACTOR/OFFEROR		15C. DATE SIGNED		16B. UNITED STATES OF AMERICA		16C. DATE SIGNED	
(Signature of person authorized to sign)				 (Signature of Contracting Officer)		ELECTRONIC SIGNATURE 07/27/2018	



<b>CONTINUATION SHEET</b>	REFERENCE NO. OF DOCUMENT BEING CONTINUED	PAGE	OF
	EP-W-16-015/68HE0H18F1540/P00001	2	2

NAME OF OFFEROR OR CONTRACTOR

WOOD ENVIRONMENT &amp; INFRASTRUCTURE SOLUTIONS, INC.

ITEM NO. (A)	SUPPLIES/SERVICES (B)	QUANTITY (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)
	<p>LIST OF CHANGES:</p> <p>Reason for Modification: Funding Only Action</p> <p>Obligated Amount for this Modification: \$35,000.00</p> <p>New Total Obligated Amount for this Award: \$50,000.00</p> <p>Incremental Funded Amount changed: from \$15,000.00 to \$50,000.00</p> <p>CHANGES FOR LINE ITEM NUMBER: 1</p> <p>Obligated Amount for this Modification: \$35,000.00</p> <p>Incremental Funded Amount changed from \$15,000.00 to \$50,000.00</p> <p>FOB changed from Destination to</p> <p>NEW ACCOUNTING CODE ADDED:</p> <p>Account code:</p> <p>18-19-C-58D5-000A45-2505-1858DC8083-001</p> <p>Beginning FiscalYear 18</p> <p>Ending Fiscal Year 19</p> <p>Fund (Appropriation) C</p> <p>Budget Organization 58D5</p> <p>Program (PRC) 000A45</p> <p>Budget (BOC) 2505</p> <p>Job # (Site/Project)</p> <p>Cost Organization</p> <p>DCN-LineID 1858DC8083-001</p> <p>Amount: \$35,000.00</p> <p>Subject To Funding: N</p> <p>Payment Address:</p> <p>RTP Finance Center</p> <p>US Environmental Protection Agency</p> <p>RTP-Finance Center (AA216-01)</p> <p>109 TW Alexander Drive</p> <p>www2.epa.gov/financial/contracts</p> <p>Durham NC 27711</p> <p>Payment:</p> <p>RTP Finance Center</p> <p>US Environmental Protection Agency</p> <p>RTP-Finance Center (AA216-01)</p> <p>109 TW Alexander Drive</p> <p>www2.epa.gov/financial/contracts</p> <p>Durham NC 27711</p> <p>Period of Performance: 07/09/2018 to 07/08/2019</p>				

Contract#: EP-W-16-015  
Task Order#: 68HE0H18F1540  
Project#: 2010  
Modification: P00001

**ATTACHMENT B**  
**SUMMARY OF TASK ORDER OBLIGATION/CEILING AMOUNTS**

Total Funding/Obligation Amounts			
Period	Previous Amount	This Action	Amount
Base Period	\$15,000.00	\$35,000.00	\$50,000.00
<b>Total</b>	<b>\$15,000.00</b>	<b>\$35,000.00</b>	<b>\$50,000.00</b>

Total Task Order Ceiling			
Period	Previous Amount	This Action	Amount
Base Period	\$68,720.00	-	\$68,720.00
<b>Total</b>	<b>\$68,720.00</b>	<b>-</b>	<b>\$68,720.00</b>

**Note:** This task order is incrementally funded in accordance with contract clause B.5 Limitation of Government's Obligation (EPA-B-32-103).

<b>AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT</b>		1. CONTRACT ID CODE		PAGE OF PAGES	
				1 2	
2. AMENDMENT/MODIFICATION NO. P00002		3. EFFECTIVE DATE See Block 16C		4. REQUISITION/PURCHASE REQ. NO. PR-ORD-18-01865	
6. ISSUED BY HPOD		7. ADMINISTERED BY (If other than Item 6)		5. PROJECT NO. (If applicable) 2010	
CODE		CODE			
HPOD US Environmental Protection Agency William Jefferson Clinton Building 1200 Pennsylvania Avenue, N. W. Mail Code: 3803R Washington DC 20460					
8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP Code)		(x)		9A. AMENDMENT OF SOLICITATION NO.	
WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS, INC. Attn: JOSEPH FARRELL 751 Arbor Way Ste 180 Blue Bell PA 194221972				9B. DATED (SEE ITEM 11)	
		x		10A. MODIFICATION OF CONTRACT/ORDER NO. EP-W-16-015 68HE0H18F1540	
CODE 038086125		FACILITY CODE		10B. DATED (SEE ITEM 13) 06/28/2018	

**11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS**

☐ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers ☐ is extended. ☐ is not extended.  
Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods: (a) By completing Items 8 and 15, and returning \_\_\_\_\_ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGEMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required) Net Increase: \$18,720.00  
See Schedule

**13. THIS ITEM ONLY APPLIES TO MODIFICATION OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.**

CHECK ONE	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.
	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).
	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
X	D. OTHER (Specify type of modification and authority) FAR 52.232-22 Limitation of Funds

**E. IMPORTANT:** Contractor ☒ is not. ☐ is required to sign this document and return \_\_\_\_\_ copies to the issuing office.

**14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)**

DUNS Number: 038086125

The purpose of this modification is to obligate incremental funding in the amount of \$18,720.00 to this task order.

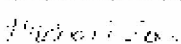
This is a Time-and-Materials (T&M) task order with a total ceiling price of \$68,720.00, which the Contractor is not authorized to exceed. The Contractor exceeds at its own risk.

The total obligated/funded ceiling amount for this order is currently \$68,720.00. This order is fully-funded as detailed in Attachment B Summary of Amounts and Ceilings and Attachment B is hereby incorporated (1 page).

TOCOR: Melissa Puchalski

Continued ...

Except as provided herein, all terms and conditions of the document referenced in Item 9 A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)		16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)	
		Michael C. Fox	
15B. CONTRACTOR/OFFEROR	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA	16C. DATE SIGNED
(Signature of person authorized to sign)		 ELECTRONIC SIGNATURE (Signature of Contracting Officer)	08/15/2018

<b>CONTINUATION SHEET</b>	REFERENCE NO. OF DOCUMENT BEING CONTINUED	PAGE	OF
	EP-W-16-015/68HE0H18F1540/P00002	2	2

NAME OF OFFEROR OR CONTRACTOR

WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS, INC.

ITEM NO. (A)	SUPPLIES/SERVICES (B)	QUANTITY (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)
	<p>LIST OF CHANGES:</p> <p>Reason for Modification: Funding Only Action</p> <p>Obligated Amount for this Modification: \$18,720.00</p> <p>New Total Obligated Amount for this Award: \$68,720.00</p> <p>Incremental Funded Amount changed: from \$50,000.00 to \$68,720.00</p> <p>CHANGES FOR LINE ITEM NUMBER: 1</p> <p>Obligated Amount for this Modification: \$18,720.00</p> <p>Incremental Funded Amount changed from \$50,000.00 to \$68,720.00</p> <p>NEW ACCOUNTING CODE ADDED:</p> <p>Account code:</p> <p>18-19-C-26UC000-000FK8XPW-2532-26A6A-1826UCE034-001</p> <p>Beginning FiscalYear 18</p> <p>Ending Fiscal Year 19</p> <p>Fund (Appropriation) C</p> <p>Budget Organization 26UC000</p> <p>Program (PRC) 000FK8XPW</p> <p>Budget (BOC) 2532</p> <p>Job # (Site/Project)</p> <p>Cost Organization 26A6A</p> <p>DCN-LineID 1826UCE034-001</p> <p>Amount: \$18,720.00</p> <p>Subject To Funding: N</p> <p>Payment Address:</p> <p>Payment:</p> <p>RTP Finance Center</p> <p>US Environmental Protection Agency</p> <p>RTP-Finance Center (AA216-01)</p> <p>109 TW Alexander Drive</p> <p>www2.epa.gov/financial/contracts</p> <p>Durham NC 27711</p> <p>Period of Performance: 07/09/2018 to 07/08/2019</p>				

Contract#: EP-W-16-015  
Task Order#: 68HE0H18F1540  
Project#: 2010  
Modification: P00002

**ATTACHMENT B**  
**SUMMARY OF TASK ORDER OBLIGATION/CEILING AMOUNTS**

Total Funding/Obligation Amounts			
Period	Previous Amount	This Action	Amount
Base Period	\$50,000.00	\$18,720.00	\$68,720.00
<b>Total</b>	<b>\$50,000.00</b>	<b>\$18,720.00</b>	<b>\$68,720.00</b>

Total Task Order Ceiling			
Period	Previous Amount	This Action	Amount
Base Period	\$68,720.00	-	\$68,720.00
<b>Total</b>	<b>\$68,720.00</b>	<b>-</b>	<b>\$68,720.00</b>

**Note:** This task order is incrementally funded in accordance with contract clause B.5 Limitation of Government's Obligation (EPA-B-32-103).



<b>AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT</b>				1. CONTRACT ID CODE		PAGE OF PAGES	
						1 4	
2. AMENDMENT/MODIFICATION NO.		3. EFFECTIVE DATE		4. REQUISITION/PURCHASE REQ. NO.		5. PROJECT NO. (If applicable)	
P00003		See Block 16C		PR-ORD-19-00804		2010	
6. ISSUED BY		CODE		7. ADMINISTERED BY (If other than Item 6)		CODE	
HPOD							
US Environmental Protection Agency William Jefferson Clinton Building 1200 Pennsylvania Avenue, N. W. Mail Code: 3803R Washington DC 20460							
8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP Code)				(x)			
WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS, INC. Attn: JOSEPH FARRELL 751 Arbor Way Ste 180 Blue Bell PA 194221972							
				9A. AMENDMENT OF SOLICITATION NO.			
				9B. DATED (SEE ITEM 11)			
				x 10A. MODIFICATION OF CONTRACT/ORDER NO.			
				EP-W-16-015			
				68HE0H18F1540			
				10B. DATED (SEE ITEM 13)			
				06/28/2018			
CODE 038086125		FACILITY CODE					
<b>11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS</b>							
<input type="checkbox"/> The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers <input type="checkbox"/> is extended. <input type="checkbox"/> is not extended. Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods: (a) By completing Items 8 and 15, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or electronic communication which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGEMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by letter or electronic communication, provided each letter or electronic communication makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.							
12. ACCOUNTING AND APPROPRIATION DATA (If required)				Net Increase:		\$37,312.00	
See Schedule							
<b>13. THIS ITEM ONLY APPLIES TO MODIFICATION OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.</b>							
CHECK ONE	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.						
	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation data, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).						
	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:						
X	D. OTHER (Specify type of modification and authority) Mutual Agreement of the Parties						
<b>E. IMPORTANT:</b> Contractor <input checked="" type="checkbox"/> is not <input type="checkbox"/> is required to sign this document and return _____ copies to the issuing office.							
14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)							
DUNS Number: 038086125							
The purpose of this modification is to incorporate the revised statement of work in Accordance with Attachment A, Revised Statement of Work (8 pages) and the revised technical and cost proposal dated April 25, 2019 (13 pages). The total price of this task order is being increased by \$43,500.00 from \$68,720.00 to \$112,220. This order is incrementally funded as detailed in Attachment B Summary of Amounts and Ceilings and Attachment B is hereby incorporated (1 page).							
This is a Time-and-Materials (T&M) task order with a total ceiling price of \$112,220.00, which the Contractor is not authorized to exceed. The Contractor exceeds at its own risk.							
Continued ...							
Except as provided herein, all terms and conditions of the document referenced in Item 9 A or 10A, as heretofore changed, remains unchanged and in full force and effect.							
15A. NAME AND TITLE OF SIGNER (Type or print)				16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)			
				Michael C. Fox			
15B. CONTRACTOR/OFFEROR		15C. DATE SIGNED		16B. UNITED STATES OF AMERICA		16C. DATE SIGNED	
				ELECTRONIC SIGNATURE 		04/30/2019	
(Signature of person authorized to sign)				(Signature of Contracting Officer)			

<b>CONTINUATION SHEET</b>	REFERENCE NO. OF DOCUMENT BEING CONTINUED	PAGE	OF
	EP-W-16-015/68HE0H18F1540/P00003	2	4

NAME OF OFFEROR OR CONTRACTOR

WOOD ENVIRONMENT &amp; INFRASTRUCTURE SOLUTIONS, INC.

ITEM NO. (A)	SUPPLIES/SERVICES (B)	QUANTITY (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)
	<p>The total obligated/funded ceiling amount for this order is currently \$106,032.00. This order is incrementally funded as detailed in Attachment B Summary of Amounts and Ceilings and Attachment B is hereby incorporated (1 page). TOCOR: Melissa Puchalski</p> <p>LIST OF CHANGES: Reason for Modification: Supplemental Agreement for work within scope Total Amount for this Modification: \$43,500.00 New Total Amount for this Version: \$112,220.00 New Total Amount for this Award: \$112,220.00 Obligated Amount for this Modification: \$37,312.00 New Total Obligated Amount for this Award: \$106,032.00 Incremental Funded Amount changed: from \$68,720.00 to \$106,032.00 CHANGES FOR LINE ITEM NUMBER: 1 Total Amount changed from \$68,720.00 to \$112,220.00 Obligated Amount for this Modification: \$37,312.00 Incremental Funded Amount changed from \$68,720.00 to \$106,032.00</p> <p>CHANGES FOR DELIVERY LOCATION: OAR/OAP Amount changed from \$68,720.00 to \$112,220.00</p> <p>NEW ACCOUNTING CODE ADDED: Account code: 18-19-C-26CF000-000FK6XR2-2532-26A5C-1926CFE020-001 Beginning FiscalYear 18 Ending Fiscal Year 19 Fund (Appropriation) C Budget Organization 26CF000 Program (PRC) 000FK6XR2 Budget (BOC) 2532 Job # (Site/Project) Cost Organization 26A5C DCN-LineID 1926CFE020-001 Amount: \$15,803.52 Subject To Funding: N Payment Address: RTP Finance Center US Environmental Protection Agency RTP-Finance Center (AA216-01) Continued ...</p>				

<b>CONTINUATION SHEET</b>	REFERENCE NO. OF DOCUMENT BEING CONTINUED	PAGE	OF
	EP-W-16-015/68HE0H18F1540/P00003	3	4

NAME OF OFFEROR OR CONTRACTOR

WOOD ENVIRONMENT &amp; INFRASTRUCTURE SOLUTIONS, INC.

ITEM NO. (A)	SUPPLIES/SERVICES (B)	QUANTITY (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)
	109 TW Alexander Drive www2.epa.gov/financial/contracts Durham NC 27711  NEW ACCOUNTING CODE ADDED: Account code: 18-19-C-26CF000-000FK8-2532-26A5C-1926CFE020-002 Beginning FiscalYear 18 Ending Fiscal Year 19 Fund (Appropriation) C Budget Organization 26CF000 Program (PRC) 000FK8 Budget (BOC) 2532 Job # (Site/Project) Cost Organization 26A5C DCN-LineID 1926CFE020-002 Amount: \$3,097.49 Subject To Funding: N Payment Address: RTP Finance Center US Environmental Protection Agency RTP-Finance Center (AA216-01) 109 TW Alexander Drive www2.epa.gov/financial/contracts Durham NC 27711  NEW ACCOUNTING CODE ADDED: Account code: 19-20-C-26CF000-000FK8-2532-26A5C-1926CFE020-003 Beginning FiscalYear 19 Ending Fiscal Year 20 Fund (Appropriation) C Budget Organization 26CF000 Program (PRC) 000FK8 Budget (BOC) 2532 Job # (Site/Project) Cost Organization 26A5C DCN-LineID 1926CFE020-003 Amount: \$18,410.99 Subject To Funding: N Payment Address: RTP Finance Center US Environmental Protection Agency RTP-Finance Center (AA216-01) 109 TW Alexander Drive www2.epa.gov/financial/contracts Durham NC 27711  Continued ...				

<b>CONTINUATION SHEET</b>	REFERENCE NO. OF DOCUMENT BEING CONTINUED	PAGE	OF
	EP-W-16-015/68HE0H18F1540/P00003	4	4

NAME OF OFFEROR OR CONTRACTOR  
WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS, INC.

ITEM NO. (A)	SUPPLIES/SERVICES (B)	QUANTITY (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)
	Payment: RTP Finance Center US Environmental Protection Agency RTP-Finance Center (AA216-01) 109 TW Alexander Drive www2.epa.gov/financial/contracts Durham NC 27711 Period of Performance: 07/09/2018 to 07/08/2019				

## ATTACHMENT A

**Title:** Supplemental Monitoring Studies at CASTNET Sites in Support of the NO<sub>x</sub>/SO<sub>x</sub> Secondary Standard (2010)  
**Contractor:** Wood Environment & Infrastructure Solutions, Inc.  
**Contract #:** EP-W-16-015  
**Task Order #:** 68HE0H18F1540  
**Mod #:** 3  
**Period of Performance:** 7/9/2018 to 7/8/2019

### EPA Key Personnel

#### **Task Order Project Officer (TOPO)/Contract Level Project Officer (PO):**

Melissa Puchalski  
Clean Air Markets Division (OAP/OAR/CAMD)  
1200 Pennsylvania Ave., NW  
Mail Code 6204M  
Washington, DC 20460  
*phone:* (202) 343-9882  
*email:* puchalski.melissa@epa.gov

#### **Alternate TOPO:**

Taylor Macy  
Clean Air Markets Division (OAP/OAR/CAMD)  
1200 Pennsylvania Ave., NW  
Mail Code 6204M  
Washington, DC 20460  
*phone:* (202) 343-9183  
*email:* macy.taylor@epa.gov

#### **Contracting Officer (CO):**

Michael Fox  
Contracting Officer  
Administrative Contract Service Center  
1200 Pennsylvania Ave N.W.  
Mail Code 3803R  
Washington DC 20460  
*phone:* (202) 564-2550  
*email:* [fox.michael@epa.gov](mailto:fox.michael@epa.gov)



## STATEMENT OF WORK

### I. INTRODUCTION

The Clean Air Status and Trends Network (CASTNET) is a long-term environmental monitoring network that measures changes in ambient air quality and assesses atmospheric deposition over broad geographic regions of the U.S. (<https://www.epa.gov/castnet>). Operating since 1987, CASTNET has evolved into a robust regional monitoring program which currently consists of approximately 95 monitoring stations nationwide. The Environmental Protection Agency (EPA) coordinates the operation of the network in cooperation with numerous federal, tribal, state and local partners.

The primary monitoring objectives of CASTNET are to:

- Provide high quality data on atmospheric deposition, rural ground level ozone and other forms of atmospheric pollution;
- Support the primary and secondary ozone NAAQS and provide data on NAAQS compliance in rural areas;
- Monitor the status and trends in regional air quality and atmospheric deposition;
- Assess and report on geographic patterns and long-term, temporal trends in ambient air pollution and atmospheric deposition;
- Improve our understanding of PM and ozone formation;
- Validate and improve atmospheric models;
- Provide data for health-based research and epidemiology studies;
- Assess the effectiveness of EPA's emission reduction programs; and
- Support science and ecosystem studies.

CASTNET sites measure weekly average concentrations of sulfate ( $\text{SO}_4^{2-}$ ), nitrate ( $\text{NO}_3^-$ ), ammonium ( $\text{NH}_4^+$ ), sulfur dioxide ( $\text{SO}_2$ ), nitric acid ( $\text{HNO}_3$ ), chloride ( $\text{Cl}^-$ ) and the base cations ( $\text{Na}^+$ ,  $\text{K}^+$ ,  $\text{Mg}^{2+}$  and  $\text{Ca}^{2+}$ ) using a 3-stage filter pack. In addition, each site may make ancillary measurements, including hourly ozone ( $\text{O}_3$ ), hourly meteorology, ammonia ( $\text{NH}_3$ ) gas using passive devices, and trace-level gases. Trace-level gas monitors include reactive oxidized nitrogen ( $\text{NO}_y$ ), nitric oxide ( $\text{NO}$ ), sulfur dioxide ( $\text{SO}_2$ ) and carbon monoxide ( $\text{CO}$ ). CASTNET  $\text{O}_3$ , meteorological, and trace gas measurements follow the requirements in the Code of Federal Regulations (CFR) and EPA's Quality Assurance Handbook.

### II. PURPOSE

The primary purpose of this task order is to improve the science and understanding of deposition process within the atmosphere. The EPA is currently evaluating the secondary National Ambient Air Quality Standard (NAAQS) for  $\text{NO}_x$  and  $\text{SO}_x$ . The work under this task will enhance the existing research currently available on direct deposition methods, atmospheric chemical processes that drive deposition parameters and estimates of sulfur and nitrogen loading to various landscapes. This research is a collaborative effort between EPA's Office of Air and Radiation (OAR), the Office of Research and Development (ORD), and other federal partners. This is a follow-on task order from the previous option periods.

Under this task order the contractor will continue to operate the enhanced  $\text{NO}_y$  analyzer at the Duke Forest flux tower site located in Research Triangle Park, North Carolina. The enhanced  $\text{NO}_y$  analyzer will operate at the Duke Forest tower site through ~~June the end of the Period of Performance~~ 2019 as part of a larger reactive nitrogen flux study. Results from the enhanced  $\text{NO}_y$  analyzer will be compared to the Monitor for Aerosols and Gases in Ambient Air (MARGA), the CASTNET filter pack, and passive samplers. The Duke Forest

research site currently features a National Atmospheric Deposition Program (NADP) Ammonia Monitoring Network (AMoN) site (NC98) and a small footprint CASTNET site.

~~Also~~ Additionally under this task order, the contactor ~~will~~ shall continue collecting the site characterization dataset for 3 co-located CASTNET/AMoN sites. The dataset shall contain information about the soil and vegetation characteristics within 1km of each AMoN site. The contractor shall collect soil and vegetation samples at approximately 15 locations at each site for laboratory analysis. A bi-direction flux box model will be run using the site characterization information as input to calculate NH<sub>3</sub> fluxes at each site. The three sites where measurements shall be made are Bondville, IL (BVL130), Duke Forest, NC (DUK008), and Chiricahua National Monument, AZ (CHA467). Under the previous option period field sampling was completed for the fall, winter and spring seasons. Sampling under this task order will complete the summer sampling at each of the 3 sites. Under this task order work will continue on the data analysis and preparation for modeling NH<sub>3</sub> deposition.

The purpose of this revision to the SOW is to include incorporating the enhanced NO<sub>y</sub> calibration system into the fast response Ecophysics NO<sub>y</sub> system and designing and building an inlet system for the Ecophysics system.

Additionally, under this task order the contractor shall write Standard Operating Procedures (SOPs) for a Conditional time-averaged gradient (COTAG) system. The COTAG system allows for 1-4 week averaged samples to be used for measuring dry deposition. This is a low-cost, low maintenance system that could be deployed at CASTNET sites to provide dry deposition estimates and validate existing flux estimates from the Community Multi-scale Air Quality Model (CMAQ) which provides deposition velocities for CASTNET grid cells.

### **III. CONTRACT LEVEL STATEMENT OF WORK REFERENCE**

The tasks to be performed under this task order are consistent with the activities authorized in ~~CLIN~~ Task 22 (Level of Effort) of the contract's Statement of Work for Contract EP-W-16-015.

### **IV. TECHNICAL DIRECTION**

#### **1. Prepare a Technical Proposal & Cost Estimate**

The Contractor shall prepare a Task Order Technical Proposal and Cost Estimate (TP&CE) in accordance with the terms and conditions of contract clauses B.21 entitled Fixed Rates for Services – Indefinite delivery/Indefinite quantity contract.

#### **2. Operate, Calibrate, and Quality Assure the Enhanced-NO<sub>y</sub> Measurement System**

The Contractor shall continue operating the enhanced-NO<sub>y</sub> measurement system at the Duke Forest Flux Tower site (DUK008) which is co-located with a CASTNET filter pack. Operation includes routine calibrations, remote troubleshooting, QA, and data reporting. The operation of the standard NO<sub>y</sub> system and the CASTNET filter pack is covered under Task Order ~~200368HE0H18F1533~~ Base Program Operations (2003). Hourly measurements from the enhanced NO<sub>y</sub> system include NH<sub>x</sub>, TN<sub>x</sub>, true NO<sub>2</sub>, NO<sub>y</sub>, NO, and HNO<sub>3</sub>. The contractor shall perform automated quality control checks of the analyzer(s) at least once per week. ~~At the Duke Forest site, the enhanced NO<sub>y</sub> inlet is placed above the forest canopy on the 150ft tower.~~

Data from the enhanced NO<sub>y</sub> measurement system shall be delivered to CAMD daily with the routine CASTNET submittals. Quality assured data shall be submitted to CAMD monthly, 90 days after data collection.

Under this task the contractor shall also continue testing the converters for a configuration that provides the most reliable, accurate data as compared to the CASTNET filterpack, AMoN and MARGA system at Duke Forest. Further testing on the calibration system is also expected.

This task includes 4 repair trips for the enhanced NO<sub>y</sub> measurement system that shall only be used as necessary. Remote troubleshooting shall be utilized when possible.

### **3. Ammonia Flux Site Characterization Database**

The contractor installed measurement systems to collect soil moisture and temperature, 3D wind direction, and CASTNET meteorology at three CASTNET sites to develop a database of site characteristics for modeling the bi-directional flux of NH<sub>3</sub> under Task Orders 0010 and 1010. The contractor also visited each site to collect soil and vegetation samples for analysis. This task is a continuation of this work. The contractor shall complete the seasonal sampling – with one final site visit to Bondville to complete summer soil and vegetation sampling. Additionally, the contractor shall continue to collect hourly meteorological measurements and poll the data remotely through July 2018. Meteorological measurements will be covered under Task Order 2003 Base Program.

After final sampling, the contractor shall provide EPA with a final data set that can be used to model deposition fluxes at the 3 monitoring sites. The final data set shall be documented and published on the EPA website. The contractor shall estimate labor hours for producing a final summary report on the field sampling campaign.

A description of the field measurements is included below. Only one final sampling campaign will take place under this task order.

Soil moisture and temperature sensors and sonic anemometers were installed under Task Order 0010. Sonic anemometer measurements of 3-dimensional wind (vectors u, v, w) and temperature shall be recorded at 10 Hertz. The contractor shall continue to run a post-processing package to perform data filtering, coordinate rotations, calculations of 30 minute or hourly turbulence statistics and apply QA metrics from the sonic anemometer.

Hourly data shall be stored in Oracle and submitted to CAMD daily. Quality assured results shall be submitted 90 days after measurements are recorded or analyzed.

This task also includes removing the soil moisture meter, meteorological equipment and data loggers once the study is over. The contractor may request that the site operators or calibrators remove the equipment if appropriate.

EPA has provided the contractor with sampling locations within a 1-km radius of each site. The locations were selected based on soil and vegetation type as reported in national online databases. The contractor shall use the sample locations as a guide when collecting the soil and vegetation samples, keeping in mind that the goal is to collect the dominate species and/or soil type.

Sample measurements and schedules are included in Table 1. The measurements are labeled to indicate if the contractor shall be responsible for the cost of the measurement. A brief description of the measurements that the contractor will be collecting is found below.

Approximately 30 composite soil samples will be collected from 15 locations and analyzed at the BVL130 site. At each of the 15 locations, 5 soil cores will be collected with a 1-m by 1-m plot. The sample depth will capture

the organic (O) topsoil (A) horizons. Individual cores shall be separated into the horizons and the five replicate samples shall be composited by horizon and measurement location generation a total of 15 O-horizon and 15 A-horizon samples per pilot site per season. Soil shall be immediately stored under refrigeration and extracted within 72 hours. Samples shall be analyzed for extractable  $\text{NH}_4^+$  and pH. For the  $\text{NH}_4^+$  analysis, five grams of field moist soil shall be extracted in 20 g of 0.01 molar  $\text{CaCl}_2$  following standard protocols. Samples shall be analyzed by ion chromatography (IC) or colorimetry by the chosen laboratory. Direct determination of pH shall be performed on a 1:5 fresh soil/water slurry. Soil gravimetric moisture shall be determined by weight loss after heating 25 g of soil for 24 hours at 105 degrees Celsius (C).

Leaf litter shall be collected on the soil surface in the sample 15 locations as the soil samples were taken. Leaf litter, where available, shall be collected seasonally. Approximately 50 g of leaf litter shall be collected within the 1x1m soil sampling location.

Green leaves shall be sampled at BVL130 from three to five individual trees/shrubs/crops representing the dominate species at approximately the same locations where soil samples were collected. Litter and leaf samples shall immediately be stored under refrigeration. Bulk green leaf and litter samples shall be subsampled for analysis of moisture, total nitrogen (N), and  $\text{NH}_4^+$ . For the  $\text{NH}_4^+$  analysis, fresh material shall be ground in liquid nitrogen and 5 g of material shall be extracted in 20 mL of deionized water. Extractions shall take place within 72 hours of collections. Extracts shall be analyzed for  $\text{NH}_4^+$  by IC or colorimetry. For total N analyses, material shall be dried, ground and analyzed for total N via combustion/elemental analysis. Moisture content shall be determined by weight loss after drying at 60 degrees C to a constant weight. For costing, the contractor shall assume that the upper and lower canopy and individual tree samples shall be bulked for analysis such that each visit will result in 15 samples.

Leaf area index (LAI) shall be measured at seasonally at approximately 15 locations. The contractor shall use the LAI 2000 plant canopy analyzer that was procured by EPA/ORD. LAI sampling locations shall correspond with soil and vegetation sampling locations where possible.

<b>Measurement Frequency</b>	<b>Measurement</b>	<b>Time period</b>	<b>Notes</b>	<b>BVL130</b>	<b>DUK008</b>	<b>CHA467</b>
<i>Initial Measurement (or 1-time measurement)</i>	<i>Canopy Height<sup>1</sup></i>	<i>Dominate species at start and end of study</i>	<i>LIDAR</i>	<i>LIDAR data exists<sup>1</sup>, but we need to take measurements of crop canopy height<sup>2</sup></i>	<i>Existing<sup>1</sup></i>	<i>Needed<sup>1</sup></i>
	<i>Vegetation characterization – species type, percentage of each species<sup>1</sup></i>	<i>LANDFIRE plots at start of study</i>	<i>LANDFIRE</i>	<i>Existing<sup>1</sup>, but we need to know what crops are planted<sup>1,2</sup></i>	<i>Existing<sup>1</sup></i>	<i>Existing<sup>1</sup></i>
	<i>Vegetation species density – stems per m<sup>2</sup> or ha<sup>2</sup></i>	<i>Peak leaf out</i>	<i>LIDAR measurements</i>	<i>Needed<sup>2</sup></i>	<i>Needed<sup>2</sup></i>	<i>Needed<sup>2</sup></i>
	<i>Surface albedo<sup>1</sup></i>	<i>Initial</i>	<i>Remote sensing data</i>	<i>Existing<sup>1</sup></i>	<i>Existing<sup>1</sup></i>	<i>Existing<sup>1</sup></i>

	Hydrological group <sup>1</sup>	Initial	NRCS WSS	Existing <sup>1</sup>	Existing <sup>1</sup>	Existing <sup>1</sup>
	Quality Rating <sup>1</sup>	Initial	NRCS WSS	Existing <sup>1</sup>	Existing <sup>1</sup>	Existing <sup>1</sup>
	Soil Type – type, percentage of each species <sup>1</sup>	Initial	NRCS WSS	Existing <sup>1</sup>	Existing <sup>1</sup>	Existing <sup>1</sup>
	Soil Characteristics – bulk density, sand/silt/clay, wilt point, field capacity, depth to impervious layer, rooting depth <sup>1</sup>	Initial	NRCS WSS	Existing <sup>1</sup>	Existing <sup>1</sup>	Existing <sup>1</sup>
	Age of Plot <sup>1</sup>	Initial	Ag – how many years has plot been cultivated, forest – when was stand last cleared?	Existing <sup>1</sup>	Existing <sup>1</sup>	?
	Overall slope of site <sup>1</sup>		NRCS WSS	Existing <sup>1</sup>	Existing <sup>1</sup>	Existing <sup>1</sup>
Seasonal	LAI Profiles <sup>2</sup>	Coincide with soil/litter sampling. Measurements at leaf out, peak LAI, senescence, and minimum LAI	Li-COR LAI 2200C	Take measurements at 15 locations <sup>2</sup>	Take measurements at 15 locations <sup>2</sup>	Take measurements at 15 locations <sup>2</sup>
	Bulk leaf tissue pH, total [N] and [NH <sub>4</sub> <sup>+</sup> ] <sup>2</sup>	Seasonally	Dominant species, 4 trees at each location	Take measurements at 15 sites <sup>2</sup>	Take measurements at 15 sites <sup>2</sup>	Take measurements at 15 sites <sup>2</sup>
	Litter – depth, composition, pH, total [N] and [NH <sub>4</sub> <sup>+</sup> ] <sup>2</sup>	After leaf drop	Dominant species at soil measurement sites. Same analysis as bulk leaf tissue.	Take measurements at 15 sites <sup>2</sup>	Take measurements at 15 sites <sup>2</sup>	Take measurements at 15 sites <sup>2</sup>
	Soil chemistry (pH, [NH <sub>4</sub> <sup>+</sup> ], and [NO <sub>3</sub> <sup>-</sup> ]) <sup>2</sup>	Seasonally, coincide with vegetation samples	Top two horizons – typically the O (organic) and A (topsoil) horizons for dominant soils/vegetation locations.	Take measurements at 15 sites <sup>2</sup>	Take measurements at 15 sites <sup>2</sup>	Take measurements at 15 sites <sup>2</sup>

Hourly	Soil characteristics (moisture, temperature) <sup>2</sup>	Hourly measurement s at 1 location	Locations depend on soil types, vegetation and site slope Temperature probe Campbell Scientific 107 Soil moisture Campbell scientific Soil H <sub>2</sub> O content reflectometer CS650	Take measurement at AMoN site <sup>2</sup>	Take measurement at AMoN site <sup>2</sup>	Take measurement at AMoN site <sup>2</sup>
	Meteorology <sup>2</sup>	Hourly, 10 Hz temperature and 3d wind vectors	Standard suite of CASTNET measurements.	Take measurement at AMoN site <sup>2</sup>	Take measurement at AMoN site <sup>2</sup>	Take measurement at AMoN site <sup>2</sup>

<sup>1</sup>EPA will provide measurement or data, <sup>2</sup> Amec Foster Wheeler shall provide collected data

The contractor shall include a technical proposal and cost estimate for the measurements listed above.

#### **4. Standard Operating Procedures (SOPs) for the Conditional Time Averaged Gradient (COTAG) Technique**

The contractor shall develop SOPs for the COTAG denuder/filter pack system for deploying the system in network (i.e. CASTNET). SOPs shall include coating and extracting the filter packs and denuders, analyzing the extracts, and developing QA/QC procedures for the laboratory preparation and analysis. Also included in the SOPs should be recommendations for how to ship the denuder/filter packs to remote monitoring sites without compromising the new or exposed samples.

Additional measurements that are included in a COTAG system, including turbulence, temperature, wind direction, stability and heat flux are not included in the SOPs under this task.

A draft of the SOPs shall be delivered by May 30<sup>th</sup>. After final comments from EPA, the final draft of the SOPs shall be delivered within 30 days.

#### **5. Design and Test Ecophysics Inlet**

ORD will ship the Ecophysics instrument to the contractor for designing a custom inlet. Once the instrument in received, the contractor shall design an inlet and control box for switching between NOy and NO2 on one channel and include a second channel for Total N. The contractor shall design and test the inlet prior to installation on the Duke Forest Flux tower. The inlet will be near the top of the tower above the canopy. The contractor shall procure the equipment (NO2 photolytic converter and stainless steel converter) and supplies needed to design and build the inlet for installation above the canopy on the flux tower.

While the contractor is designing and testing the inlet they shall also become familiar with the software and options for automated calibrations. The contractor shall work with EPA to determine how often calibrations should be performed given the fast response and any drift in the converters. Zero checks may need to be performed frequently using the existing Ecophysics zero system that can be programmed to run zero air through the inlet and the photomultiplier tube (PMT).

#### **6. Install Ecophysics System and Integrate z/p/s Checks at Duke Forest**

The contractor shall install the Ecophysics system at Duke Forest with the newly designed inlet in the early summer. At the time of the install, the contractor shall integrate the calibration gas delivery system from the Enhanced NOy system into the Ecophysics for routine QC checks. The contractor shall procure or use the existing data logger for programming the Ecophysics automated zero, span and precision checks.

Ambient and QC data from the Ecophysics shall be polled by the contractor's data acquisition system and reported in the CASTNET database.

## **V. DELIVERABLES AND SCHEDULE**

### **1. Proposal**

The contractor shall deliver a Task Order Technical Proposal & Cost Estimate in accordance with clause B.7 Task Order Ordering Procedures of the contract. The proposal shall be submitted 10 days after receipt of the SOW.

### **2. Monthly Progress Report**

The contractor shall prepare and submit a monthly progress report by the 15<sup>th</sup> of each month summarizing the progress made, issues encountered or expected, work planned for the next reporting period and costs. These reports shall comply with contract clauses F.4.1, Monthly Progress Report, and F-5, Reports of Work. Reports shall be delivered electronically.

### **3. Site Characterization Database**

The contractor shall deliver a database with valid data and all QA/QC data reported during the field campaign. The database shall be delivered 90 days after the final measurement is taken. Additional details on database submittal included in AMoN Characterization Study\_Data Deliverables R3.docx.

### **4. Publication**

Within 6-months after the final sample is collected, the contractor shall work with the TOPOs and technical advisors to prepare an EPA summary report.

### **5. Standard Operation Procedures for COTAG System**

The contractor shall deliver a draft of the SOPs for the COTAG system by May 30<sup>th</sup>. A final draft shall be prepared 30 days after comments are received from EPA.

## **Distribution of Deliverables:**

Addressee	Copies
EPA Contracting Officer (Mike Fox)	1
EPA Project Officer (Melissa Puchalski)	1
EPA Alternate (Taylor Macy)	1
EPA Technical Advisors (Ralph Baumgardner and John Walker)	1

Contract#: EP-W-16-015  
Task Order#: 68HE0H18F1540  
Project#: 2010  
Modification: P00003

**ATTACHMENT B**  
**SUMMARY OF TASK ORDER OBLIGATION/CEILING AMOUNTS**

Total Funding/Obligation Amounts			
Period	Previous Amount	This Action	Amount
Base Period	\$68,720.00	\$37,312.00	\$106,032.00
<b>Total</b>	<b>\$68,720.00</b>	<b>\$37,312.00</b>	<b>\$106,032.00</b>

Total Task Order Ceiling			
Period	Previous Amount	This Action	Amount
Base Period	\$68,720.00	\$43,500.00	\$112,220.00
<b>Total</b>	<b>\$68,720.00</b>	<b>\$43,500.00</b>	<b>\$112,220.00</b>

**Note:** This task order is incrementally funded in accordance with contract clause B.5 Limitation of Government's Obligation (EPA-B-32-103).



<b>AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT</b>				1. CONTRACT ID CODE		PAGE OF PAGES	
						1      2	
2. AMENDMENT/MODIFICATION NO.		3. EFFECTIVE DATE		4. REQUISITION/PURCHASE REQ. NO.		5. PROJECT NO. (If applicable)	
P00004		See Block 16C				2010	
6. ISSUED BY		CODE		7. ADMINISTERED BY (If other than Item 6)		CODE	
HPOD							
US Environmental Protection Agency William Jefferson Clinton Building 1200 Pennsylvania Avenue, N. W. Mail Code: 3803R Washington DC 20460							
8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP Code)				(x) 9A. AMENDMENT OF SOLICITATION NO.			
WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS, INC. Attn: JOSEPH FARRELL 751 Arbor Way Ste 180 Blue Bell PA 194221972				9B. DATED (SEE ITEM 11)			
				x 10A. MODIFICATION OF CONTRACT/ORDER NO. EP-W-16-015 68HE0H18F1540			
				10B. DATED (SEE ITEM 13)			
CODE 038086125		FACILITY CODE		06/28/2018			
<b>11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS</b>							
<input type="checkbox"/> The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers <input type="checkbox"/> is extended. <input type="checkbox"/> is not extended. Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods: (a) By completing Items 8 and 15, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or electronic communication which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGEMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by letter or electronic communication, provided each letter or electronic communication makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.							
12. ACCOUNTING AND APPROPRIATION DATA (If required)				Net Decrease:		-\$33,190.95	
See Schedule							
<b>13. THIS ITEM ONLY APPLIES TO MODIFICATION OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.</b>							
CHECK ONE	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.						
	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation data, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).						
	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:						
X	D. OTHER (Specify type of modification and authority) EPA-B-32-103 - LIMITATION OF GOVERNMENT'S OBLIGATION						
<b>E. IMPORTANT:</b> Contractor <input checked="" type="checkbox"/> is not <input type="checkbox"/> is required to sign this document and return _____ copies to the issuing office.							
14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)							
DUNS Number: 038086125							
The purpose of this modification is to de-obligate funding in the amount of \$33,190.95 from this task order.							
TOCOR: Melissa Puchalski							
LIST OF CHANGES:							
Reason for Modification: Funding Only Action							
Obligated Amount for this Modification: -\$33,190.95							
New Total Obligated Amount for this Award: \$72,841.05							
Incremental Funded Amount changed: from							
\$106,032.00 to \$72,841.05							
CHANGES FOR LINE ITEM NUMBER: 1							
Continued ...							
Except as provided herein, all terms and conditions of the document referenced in Item 9 A or 10A, as heretofore changed, remains unchanged and in full force and effect.							
15A. NAME AND TITLE OF SIGNER (Type or print)				16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)			
				Michael C. Fox			
15B. CONTRACTOR/OFFEROR		15C. DATE SIGNED		16B. UNITED STATES OF AMERICA		16C. DATE SIGNED	
(Signature of person authorized to sign)				 (Signature of Contracting Officer)		07/17/2019	

<b>CONTINUATION SHEET</b>	REFERENCE NO. OF DOCUMENT BEING CONTINUED	PAGE	OF
	EP-W-16-015/68HE0H18F1540/P00004	2	2

NAME OF OFFEROR OR CONTRACTOR

WOOD ENVIRONMENT &amp; INFRASTRUCTURE SOLUTIONS, INC.

ITEM NO. (A)	SUPPLIES/SERVICES (B)	QUANTITY (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)
	<p>Obligated Amount for this Modification: -\$33,190.95 Incremental Funded Amount changed from \$106,032.00 to \$72,841.05</p> <p>CHANGES FOR ACCOUNTING CODE: 18-19-C-58D5-000A45-2505-1858DC8083-001 Amount changed from \$35,000.00 to \$13,971.00</p> <p>CHANGES FOR ACCOUNTING CODE: 18-19-C-26CF000-000FK6XR2-2532-26A5C-1926CFE020-001 Amount changed from \$15,803.52 to \$3,641.57</p> <p>Payment: RTP Finance Center US Environmental Protection Agency RTP-Finance Center (AA216-01) 109 TW Alexander Drive www2.epa.gov/financial/contracts Durham NC 27711 Period of Performance: 07/09/2018 to 07/08/2019</p>				

<b>AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT</b>				1. CONTRACT ID CODE		PAGE OF PAGES 1 2	
2. AMENDMENT/MODIFICATION NO. P00005		3. EFFECTIVE DATE See Block 16C		4. REQUISITION/PURCHASE REQ. NO.		5. PROJECT NO. (If applicable) 2010	
6. ISSUED BY HPOD		CODE HPOD		7. ADMINISTERED BY (If other than Item 6)		CODE	
HPOD US Environmental Protection Agency William Jefferson Clinton Building 1200 Pennsylvania Avenue, N. W. Mail Code: 3803R Washington DC 20460							
8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP Code)  WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS, INC. Attn: JOSEPH FARRELL 751 Arbor Way Ste 180 Blue Bell PA 194221972				(x)			
				9A. AMENDMENT OF SOLICITATION NO.			
				9B. DATED (SEE ITEM 11)			
				10A. MODIFICATION OF CONTRACT/ORDER NO. EP-W-16-015 68HE0H18F1540			
CODE 038086125		FACILITY CODE		10B. DATED (SEE ITEM 13) 06/28/2018			
<b>11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS</b>							
<input type="checkbox"/> The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers <input type="checkbox"/> is extended. <input type="checkbox"/> is not extended. Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods: (a) By completing Items 8 and 15, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or electronic communication which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGEMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by letter or electronic communication, provided each letter or electronic communication makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.							
12. ACCOUNTING AND APPROPRIATION DATA (If required) See Schedule				Net Decrease:		-\$2,411.23	
<b>13. THIS ITEM ONLY APPLIES TO MODIFICATION OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.</b>							
CHECK ONE	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.						
	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation data, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).						
	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:						
X	D. OTHER (Specify type of modification and authority) EPA-B-32-103 - LIMITATION OF GOVERNMENT'S OBLIGATION						
<b>E. IMPORTANT:</b> Contractor <input checked="" type="checkbox"/> is not <input type="checkbox"/> is required to sign this document and return _____ copies to the issuing office.							
14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)							
DUNS Number: 038086125							
The purpose of this modification is to de-obligate funding in the amount of \$2,411.23 from this task order.							
TOCOR: Melissa Puchalski							
LIST OF CHANGES:							
Reason for Modification: Funding Only Action							
Obligated Amount for this Modification: -\$2,411.23							
New Total Obligated Amount for this Award: \$70,429.82							
Incremental Funded Amount changed: from							
\$72,841.05 to \$70,429.82							
CHANGES FOR LINE ITEM NUMBER: 1							
Continued ...							
Except as provided herein, all terms and conditions of the document referenced in Item 9 A or 10A, as heretofore changed, remains unchanged and in full force and effect.							
15A. NAME AND TITLE OF SIGNER (Type or print)				16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)			
				Michael C. Fox			
15B. CONTRACTOR/OFFEROR		15C. DATE SIGNED		16B. UNITED STATES OF AMERICA		16C. DATE SIGNED	
(Signature of person authorized to sign)				 (Signature of Contracting Officer)		ELECTRONIC SIGNATURE 03/17/2020	

<b>CONTINUATION SHEET</b>	REFERENCE NO. OF DOCUMENT BEING CONTINUED	PAGE	OF
	EP-W-16-015/68HE0H18F1540/P00005	2	2

NAME OF OFFEROR OR CONTRACTOR

WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS, INC.

ITEM NO. (A)	SUPPLIES/SERVICES (B)	QUANTITY (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)
	<p>Obligated Amount for this Modification: -\$2,411.23 Incremental Funded Amount changed from \$72,841.05 to \$70,429.82</p> <p>CHANGES FOR ACCOUNTING CODE: 19-20-C-26CF000-000FK8-2532-26A5C-1926CFE020-003 Amount changed from \$18,410.99 to \$15,999.76</p> <p>Payment: RTP Finance Center US Environmental Protection Agency RTP-Finance Center (AA216-01) 109 TW Alexander Drive www2.epa.gov/financial/contracts Durham NC 27711 Period of Performance: 07/09/2018 to 07/08/2019</p>				

<b>SOLICITATION/CONTRACT/ORDER FOR COMMERCIAL ITEMS</b> <i>OFFEROR TO COMPLETE BLOCKS 12, 17, 23, 24, &amp; 30</i>				1. REQUISITION NUMBER See Schedule		PAGE OF 1 3	
2. CONTRACT NO. EP-W-16-015		3. AWARD/ EFFECTIVE DATE 07/09/2018		4. ORDER NUMBER 68HE0H18F1541		5. SOLICITATION NUMBER	
6. SOLICITATION ISSUE DATE							
7. <b>FOR SOLICITATION INFORMATION CALL:</b>		a. NAME Michael Fox			b. TELEPHONE NUMBER (No collect calls) 202-564-2550		8. OFFER DUE DATE/LOCAL TIME ET
9. ISSUED BY HPOD US Environmental Protection Agency William Jefferson Clinton Building 1200 Pennsylvania Avenue, N. W. Mail Code: 3803R Washington DC 20460				10. THIS ACQUISITION IS <input checked="" type="checkbox"/> UNRESTRICTED OR <input type="checkbox"/> SET ASIDE: % FOR:  <div style="display: flex; justify-content: space-between;"> <div> <input type="checkbox"/> SMALL BUSINESS  <input type="checkbox"/> HUBZONE SMALL BUSINESS  <input type="checkbox"/> SERVICE-DISABLED VETERAN-OWNED SMALL BUSINESS </div> <div> <input type="checkbox"/> WOMEN-OWNED SMALL BUSINESS (WOSB) ELIGIBLE UNDER THE WOMEN-OWNED SMALL BUSINESS PROGRAM  <input type="checkbox"/> EDWOSB  <input type="checkbox"/> 8(A) </div> <div> NAICS: 541620   SIZE STANDARD: \$15.0 </div> </div>			
11. DELIVERY FOR FOB DESTINATION UNLESS BLOCK IS MARKED <input checked="" type="checkbox"/> SEE SCHEDULE		12. DISCOUNT TERMS		13a. THIS CONTRACT IS A RATED ORDER UNDER DPAS (15 CFR 700) <input type="checkbox"/>		13b. RATING	
15. DELIVER TO OAR/OAP US Environmental Protection Agency 1200 Pennsylvania Avenue NW Mail Code: 62101J OAR/OAP Washington DC 20460		16. ADMINISTERED BY HPOD US Environmental Protection Agency William Jefferson Clinton Building 1200 Pennsylvania Avenue, N. W. Mail Code: 3803R Washington DC 20460		14. METHOD OF SOLICITATION <input type="checkbox"/> RFQ <input type="checkbox"/> IFB <input type="checkbox"/> RFP			
17a. CONTRACTOR/OFFEROR CODE 038086125		FACILITY CODE		18a. PAYMENT WILL BE MADE BY CODE RTP FMC			
WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS, INC. Attn: JOSEPH FARRELL 751 Arbor Way Ste 180 Blue Bell PA 194221972  (b)(4)  TELEPHONE NO.				RTP Finance Center US Environmental Protection Agency RTP-Finance Center (AA216-01) 109 TW Alexander Drive www2.epa.gov/financial/contracts Durham NC 27711			
<input type="checkbox"/> 17b. CHECK IF REMITTANCE IS DIFFERENT AND PUT SUCH ADDRESS IN OFFER				<input type="checkbox"/> 18b. SUBMIT INVOICES TO ADDRESS SHOWN IN BLOCK 18a UNLESS BLOCK BELOW IS CHECKED <input type="checkbox"/> SEE ADDENDUM			
19. ITEM NO.	20. SCHEDULE OF SUPPLIES/SERVICES			21. QUANTITY	22. UNIT	23. UNIT PRICE	24. AMOUNT
	DUNS Number: 038086125 This task order is issued in accordance with Task Order Ordering Procedures and hereby incorporates the base contract terms and conditions by reference. The effective date for performance to commence is July 9, 2018.  The Contractor shall perform in accordance with the Attachment A Statement of Work (6 pages) and the accepted technical proposal and cost estimate dated April 30, 2018 (8 pages) in the amount of <i>(Use Reverse and/or Attach Additional Sheets as Necessary)</i>						
25. ACCOUNTING AND APPROPRIATION DATA See schedule						26. TOTAL AWARD AMOUNT (For Govt. Use Only) \$508,029.00	
<input type="checkbox"/> 27a. SOLICITATION INCORPORATES BY REFERENCE FAR 52.212-1, 52.212-4. FAR 52.212-3 AND 52.212-5 ARE ATTACHED. ADDENDA <input type="checkbox"/> 27b. CONTRACT/PURCHASE ORDER INCORPORATES BY REFERENCE FAR 52.212-4. FAR 52.212-5 IS ATTACHED. ADDENDA						<input type="checkbox"/> ARE <input type="checkbox"/> ARE NOT ATTACHED. <input type="checkbox"/> ARE <input type="checkbox"/> ARE NOT ATTACHED.	
<input type="checkbox"/> 28. CONTRACTOR IS REQUIRED TO SIGN THIS DOCUMENT AND RETURN COPIES TO ISSUING OFFICE. CONTRACTOR AGREES TO FURNISH AND DELIVER ALL ITEMS SET FORTH OR OTHERWISE IDENTIFIED ABOVE AND ON ANY ADDITIONAL SHEETS SUBJECT TO THE TERMS AND CONDITIONS SPECIFIED.				<input type="checkbox"/> 29. AWARD OF CONTRACT: _____ OFFER DATED _____. YOUR OFFER ON SOLICITATION (BLOCK 5), INCLUDING ANY ADDITIONS OR CHANGES WHICH ARE SET FORTH HEREIN, IS ACCEPTED AS TO ITEMS:			
30a. SIGNATURE OF OFFEROR/CONTRACTOR				31a. UNITED STATES OF AMERICA (SIGNATURE OF CONTRACTING OFFICER)			
30b. NAME AND TITLE OF SIGNER (Type or print)		30c. DATE SIGNED		31b. NAME OF CONTRACTING OFFICER (Type or print)		31c. DATE SIGNED	
				Michael C. Fox			

19. ITEM NO.	20. SCHEDULE OF SUPPLIES/SERVICES	21. QUANTITY	22. UNIT	23. UNIT PRICE	24. AMOUNT
0001	<p>\$508,029.00.</p> <p>This is a Time-and-Materials (T&amp;M) task order with a total ceiling price of \$508,029.00, which the Contractor is not authorized to exceed. The Contractor exceeds at its own risk.</p> <p>The total obligated/funded ceiling amount for this order is currently \$501,975.52. This order is incrementally funded as detailed in Attachment B Summary of Amounts and Ceilings and Attachment B is hereby incorporated (1 page).</p> <p>Contracting Officer's Representative (COR) for this task order: Taylor Macy, (202) 343-9183, Macy.Taylor@epa.gov</p> <p>Alternate COR: Melissa Puchalski, (202) 343-9882, Puchalski.Melissa@epa.gov</p> <p>The services of this order are for severable. TOCOR: Taylor Macy Period of Performance: 07/09/2018 to 07/08/2019</p> <p>NADP Annual Support Requisition No: PR-OAR-18-00507, PR-OAR-18-00545</p> <p>Accounting Info: Continued ...</p>				

32a. QUANTITY IN COLUMN 21 HAS BEEN

☐ RECEIVED    ☐ INSPECTED    ☐ ACCEPTED, AND CONFORMS TO THE CONTRACT, EXCEPT AS NOTED: \_\_\_\_\_

32b. SIGNATURE OF AUTHORIZED GOVERNMENT REPRESENTATIVE		32c. DATE	32d. PRINTED NAME AND TITLE OF AUTHORIZED GOVERNMENT REPRESENTATIVE	
32e. MAILING ADDRESS OF AUTHORIZED GOVERNMENT REPRESENTATIVE			32f. TELEPHONE NUMBER OF AUTHORIZED GOVERNMENT REPRESENTATIVE	
			32g. E-MAIL OF AUTHORIZED GOVERNMENT REPRESENTATIVE	
33. SHIP NUMBER	34. VOUCHER NUMBER	35. AMOUNT VERIFIED CORRECT FOR	36. PAYMENT	37. CHECK NUMBER
<input type="checkbox"/> PARTIAL <input type="checkbox"/> FINAL			<input type="checkbox"/> COMPLETE <input type="checkbox"/> PARTIAL <input type="checkbox"/> FINAL	
38. S/R ACCOUNT NUMBER	39. S/R VOUCHER NUMBER	40. PAID BY		
41a. I CERTIFY THIS ACCOUNT IS CORRECT AND PROPER FOR PAYMENT		42a. RECEIVED BY ( <i>Print</i> )		
41b. SIGNATURE AND TITLE OF CERTIFYING OFFICER		41c. DATE	42b. RECEIVED AT ( <i>Location</i> )	
			42c. DATE REC'D (YY/MM/DD)	42d. TOTAL CONTAINERS

NAME OF OFFEROR OR CONTRACTOR  
WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS, INC.

ITEM NO. (A)	SUPPLIES/SERVICES (B)	QUANTITY (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)
	18-19-C-58D5-000A45-2505 BFY: 18 EFY: 19 Fund: C Budget Org: 58D5 Program (PRC): 000A45 Budget (BOC): 2505 Funding Flag: Partial Funded: \$0.00 Accounting Info: 18-19-C-58D5-000A45-2505-1858DC8027-001 BFY: 18 EFY: 19 Fund: C Budget Org: 58D5 Program (PRC): 000A45 Budget (BOC): 2505 DCN - Line ID: 1858DC8027-001 Funding Flag: Partial Funded: \$501,975.52				

## **ATTACHEMENT A**

### **Statement of Work**

**Title:** NADP Annual Support  
**Contract #:** EP-W-16-015  
**Project #:** 2014  
**Period of Performance:** 7/9/2018 to 7/8/2019

### **EPA Key Personnel**

#### **Task Order Project Officer (TOPO)/Contract Level Project Officer (PO):**

Taylor Macy  
Clean Air Markets Division (OAP/OAR/CAMD)  
1200 Pennsylvania Ave., NW  
Mail Code 6204M  
Washington, DC 20460  
*phone:* (202) 343-9183  
*email:* macy.taylor@epa.gov

#### **Alternate TOPO:**

Melissa Puchalski  
Clean Air Markets Division (OAP/OAR/CAMD)  
1200 Pennsylvania Ave., NW  
Mail Code 6204M  
Washington, DC 20460  
*phone:* (202) 343-9882  
*email:* puchalski.melissa@epa.gov

#### **Contracting Officer (CO):**

Michael Fox  
Contracting Officer  
Administrative Contract Service Center  
1200 Pennsylvania Ave N.W.  
Mail Code 3803R  
Washington DC 20460  
*phone:* (202) 564-2550  
*email:* fox.michael@epa.gov



## **STATEMENT OF WORK**

### **I. INTRODUCTION**

The Clean Air Status and Trends Network (CASTNET) is a long-term environmental monitoring network that measures changes in ambient air quality and assesses atmospheric deposition over broad geographic regions of the U.S. (<https://www.epa.gov/castnet>). Operating since 1987, CASTNET has evolved into a robust regional monitoring program which currently consists of approximately 95 monitoring stations nationwide. The Environmental Protection Agency (EPA) coordinates the operation of the network in cooperation with numerous federal, tribal, state and local partners.

The primary monitoring objectives of CASTNET are to:

- Provide high quality data on atmospheric deposition, rural ground level ozone and other forms of atmospheric pollution;
- Support the primary and secondary ozone NAAQS and provide data on NAAQS compliance in rural areas;
- Monitor the status and trends in regional air quality and atmospheric deposition;
- Assess and report on geographic patterns and long-term, temporal trends in ambient air pollution and atmospheric deposition;
- Improve our understanding of PM and ozone formation;
- Validate and improve atmospheric models;
- Provide data for health-based research and epidemiology studies;
- Assess the effectiveness of EPA's emission reduction programs; and
- Support science and ecosystem studies.

CASTNET sites measure weekly average concentrations of sulfate ( $\text{SO}_4^{2-}$ ), nitrate ( $\text{NO}_3^-$ ), ammonium ( $\text{NH}_4^+$ ), sulfur dioxide ( $\text{SO}_2$ ), nitric acid ( $\text{HNO}_3$ ), chloride ( $\text{Cl}^-$ ) and the base cations ( $\text{Na}^+$ ,  $\text{K}^+$ ,  $\text{Mg}^{2+}$  and  $\text{Ca}^{2+}$ ) using a 3-stage filter pack. In addition, each site may make ancillary measurements, including hourly ozone ( $\text{O}_3$ ), hourly meteorology, ammonia ( $\text{NH}_3$ ) gas using passive devices, and trace-level gases. Trace-level gas monitors include reactive oxidized nitrogen ( $\text{NO}_y$ ), nitric oxide ( $\text{NO}$ ), sulfur dioxide ( $\text{SO}_2$ ) and carbon monoxide ( $\text{CO}$ ). CASTNET  $\text{O}_3$ , meteorological, and trace gas measurements follow the requirements in the Code of Federal Regulations (CFR) and EPA's Quality Assurance Handbook.

### **II. PURPOSE**

The primary purpose of this task order is to provide support for the National Atmospheric Deposition Program's (NADP's) network operations and site support. This includes EPA/CAMDs support for analytical chemistry, quality assurance and network equipment services provided by the University of Wisconsin's Hygiene Laboratory.

### **III. CONTRACT LEVEL STATEMENT OF WORK REFERENCE**

The tasks to be performed under this task order are consistent with the activities authorized in CLIN 22 of the contract's Statement of Work.

### **IV. TECHNICAL DIRECTION**

#### **1. Prepare a Technical Proposal & Cost Estimate**

The Contractor shall prepare a Task Order Proposal in accordance with the terms and conditions of contract clauses B.2 entitled Fixed Rates for Services – Indefinite delivery/Indefinite quantity contract.

## 2. NADP Participation

The contractor shall coordinate with NADP's Program Office (PO) and Central Analytical Laboratory to provide chemical and analytical, data validation, and site support services for all NADP's NTN, AMoN, and AMNet sites listed in Table 3 which are supported by the US EPA's Clean Air Markets Division. EPA CAMD supports the chemical analysis, data validation, network equipment depot, and PO coordination for 32 NTN sites; chemical analysis and PO coordination of 70 AMoN sites; and PO coordination of 2 AMNet sites.

The contractor shall coordinate with NADP's PO to provide quality assurance services for NTN and AMNet to ensure conformance with NADP's network quality assurance plans and procedures for field and laboratory operations and data management.

The contractor shall coordinate with NADP's Program Office to provide support for use of Parameter-elevation Regressions on Independent Slopes *Model (PRISM)*, which produces digital grids of precipitation estimates from many precipitation-monitoring networks.

Table 3. NADP NTN, AMoN, and AMNet sites supported by USEPA Clean Air Markets Division

NTN Site ID	Site Name
AL99	Sand Mountain Ag Exp Station
AZ98	Chiricahua
CO08	Four Mile Park
CO10	Gothic
CO92	Sunlight Peak
CO94	Sugarloaf
CT15	Abington
FL03	Bradford Forest
FL23	Sumatra
GA20	Bellville
IL11	Bondville
IL46	Alhambra
ME04	Carrabassett Valley
MI51	Unionville
MI52	Ann Arbor
MI98	Raco
MN18	Fernberg
NC06	Beaufort
NJ39	Cattus Island County Park
NJ99	Washington Crossing
NY22	Akwesasne Mohawk - Fort Covington
NY52	Bennett Bridge
OH54	Deer Creek State Park
OR97	Hyslop Farm

PA00	Arendtsville
TN04	Speedwell
VA13	Horton's Station
VA24	Prince Edward
WA21	LaGrande
WI35	Perkinstown
WV05	Cedar Creek State Park
NY67	Connecticut Hill

AMoN Site ID	Site Name
AL99	Sand Mt Research & Extension Ctr
AR03	Caddo Valley
CO10	Gothic
CO13	Fort Collins
CT15	Abington
FL19	Indian River
FL23	Sumatra
GA41	Georgia Station
ID07	Nez Pearce
IL11	Bondville (3 and 1)
IL37	Stockton
IL46	Alhambra
IN20	Roush Lake
IN22	SW Purdue Ag Center )
IN99	Indianapolis
KS31	Konza Prairie
KS97	Kickapoo Tribe - Powhattan
KY03	Mackville
KY29	Crockett
KY98	Cadiz
MD06	Blackwater NWR
ME93	Ashland
MI51	Unionville
MI52	Ann Arbor
MI95	Hoxeyville
MI96	Detroit
MN18	Fernberg (3 and 1)
MN02	Red Lake
MS30	Coffeeville
NC02	Cranberry
NC06	Carteret
NC25	Coweeta
NC26	Candor
NC30	Duke Forest

NC35	Clinton Crops Research Station
NE98	Santee
NH02	Hubbard Brook
NJ98	Washington Crossing- CASTNET
NM98	Navajo Lake
NM99	Farmington
NY20	Huntington Wildlife
NY67	Ithaca (3 and 1)
NY91	Claryville
NY94	Nick's Lake
NY98	Whiteface Mountain
OH02	Athens
OH09	Oxford
OH27	Cincinnati
OH54	Deer Creek State Park
OH99	Quaker City
OK99	Stilwell
PA00	Arendtsville
PA29	Kane Experimental Forest
PA96	Penn State - Fairbrook Park
PA56	M. K. Goddard
PA97	Laurel Hill
SC05	Cape Romain National Wildlife Refuge
TN04	Speedwell
TN07	Edgar Evins
TX41	Alabama-Coushatta
TX43	Canonceta
VA13	Horton's Station
VA24	Prince Edward
VT99	Underhill
WI07	Mayville
WI35	Perkinstown
WV05	Cedar Creek State Park
WV18	Parsons
WY06	Pinedale
WY95	Brooklyn Lake

AMNet Site ID	Site Name
NJ30	New Brunswick
NJ54	Elizabeth Lab

## V. DELIVERABLES AND SCHEDULE

## **1. Technical Proposal & Cost Estimate**

The contractor shall deliver a Task Order Proposal and cost estimate in accordance with clause B.7 Task Order Ordering Procedures of the contract. The proposal shall be submitted 10 days after receipt of the SOW.

## **2. Monthly Progress Report**

The contractor shall prepare and submit a monthly progress report by the 15<sup>th</sup> of each month summarizing the progress made, issues encountered or expected, work planned for the next reporting period and costs. These reports shall comply with contract clauses F.1 Monthly Progress Report and F-5 Reports of work. Reports shall be delivered electronically.

### **Distribution of Deliverables:**

Addressee	Copies
EPA Contracting Officer (Mike Fox)	1
EPA Task Order Project Officer (Taylor Macy)	1
EPA Alternate TOPO (Melissa Puchalski)	1

**ATTACHMENT B**  
**SUMMARY OF TASK ORDER OBLIGATION/CEILING AMOUNTS**

Total Funding/Obligation Amounts			
Period	Previous Amount	This Action	Amount
Base Period		\$501,975.52	\$501,975.52
<b>Total</b>		<b>\$501,975.52</b>	<b>\$501,975.52</b>

Total Task Order Ceiling			
Period	Previous Amount	This Action	Amount
Base Period	-	\$508,029.00	\$508,029.00
<b>Total</b>	-	<b>\$508,029.00</b>	<b>\$508,029.00</b>

**Note:** This task order is incrementally funded in accordance with contract clause B.5 Limitation of Government's Obligation (EPA-B-32-103).

<b>AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT</b>		1. CONTRACT ID CODE		PAGE OF PAGES	
				1 3	
2. AMENDMENT/MODIFICATION NO. P00001		3. EFFECTIVE DATE See Block 16C		4. REQUISITION/PURCHASE REQ. NO. PR-OAR-19-00494	
5. PROJECT NO. (If applicable) EP-W-16-015		6. ISSUED BY HPOD		7. ADMINISTERED BY (If other than Item 6) CODE	
HPOD US Environmental Protection Agency William Jefferson Clinton Building 1200 Pennsylvania Avenue, N. W. Mail Code: 3803R Washington DC 20460					
8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP Code)  WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS, INC. Attn: JOSEPH FARRELL 751 Arbor Way Ste 180 Blue Bell PA 194221972		(X)		9A. AMENDMENT OF SOLICITATION NO.	
				9B. DATED (SEE ITEM 11)	
		X		10A. MODIFICATION OF CONTRACT/ORDER NO. EP-W-16-015 68HE0H18F1541	
				10B. DATED (SEE ITEM 13) 06/28/2018	
CODE 038086125		FACILITY CODE			

**11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS**

☐ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers ☐ is extended. ☐ is not extended.  
Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods: (a) By completing Items 8 and 15, and returning \_\_\_\_\_ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or electronic communication which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGEMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by letter or electronic communication, provided each letter or electronic communication makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required) Net Increase: \$8,553.85  
See Schedule

**13. THIS ITEM ONLY APPLIES TO MODIFICATION OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.**

CHECK ONE	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.
	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation data, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).
	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
X	D. OTHER (Specify type of modification and authority) Mutual Agreement of the Parties

**E. IMPORTANT:** Contractor ☒ is not ☐ is required to sign this document and return \_\_\_\_\_ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)

DUNS Number: 038086125

The purpose of this modification is to incorporate the revised statement of work in Accordance with Attachment A, Revised Statement of Work (6 pages) and the revised technical and cost proposal dated March 28, 2019 (8 pages). The total price of this task order is being increased by \$2,659.00 from \$508,029.00 to \$510,688.00. This order is incrementally funded as detailed in Attachment B Summary of Amounts and Ceilings and Attachment B is hereby incorporated (1 page).

Continued ...

Except as provided herein, all terms and conditions of the document referenced in Item 9 A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)		16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print) Michael C. Fox	
15B. CONTRACTOR/OFFEROR  (Signature of person authorized to sign)	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA  (Signature of Contracting Officer)	16C. DATE SIGNED 03/28/2019

Previous edition unusable

<b>CONTINUATION SHEET</b>	REFERENCE NO. OF DOCUMENT BEING CONTINUED	PAGE	OF
	EP-W-16-015/68HE0H18F1541/P00001	2	3

NAME OF OFFEROR OR CONTRACTOR

WOOD ENVIRONMENT &amp; INFRASTRUCTURE SOLUTIONS, INC.

ITEM NO. (A)	SUPPLIES/SERVICES (B)	QUANTITY (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)
	<p>This is a Time-and-Materials (T&amp;M) task order with a total ceiling price of \$510,688.00, which the Contractor is not authorized to exceed. The Contractor exceeds at its own risk.</p> <p>The total obligated/funded ceiling amount for this order is currently \$510,529.37. This order is incrementally funded as detailed in Attachment B Summary of Amounts and Ceilings and Attachment B is hereby incorporated (1 page).</p> <p>TOCOR: Taylor Macy</p> <p>LIST OF CHANGES: Reason for Modification: Funding Only Action</p> <p>Total Amount for this Modification: \$2,659.00 New Total Amount for this Version: \$510,688.00 New Total Amount for this Award: \$510,688.00 Obligated Amount for this Modification: \$8,553.85</p> <p>New Total Obligated Amount for this Award: \$510,529.37</p> <p>Incremental Funded Amount changed: from \$501,975.52 to \$510,529.37</p> <p>CHANGES FOR LINE ITEM NUMBER: 1 Total Amount changed from \$508,029.00 to \$510,688.00 Obligated Amount for this Modification: \$8,553.85 Incremental Funded Amount changed from \$501,975.52 to \$510,529.37 FOB changed from Destination to</p> <p>NEW ACCOUNTING CODE ADDED: Account code: 19-20-C-58D5-000A45-2505-1958DC9032-001 Beginning FiscalYear 19 Ending Fiscal Year 20 Fund (Appropriation) C Budget Organization 58D5 Program (PRC) 000A45 Budget (BOC) 2505 Job # (Site/Project) Cost Organization DCN-LineID 1958DC9032-001 Amount: \$8,553.85 Subject To Funding: N Payment Address:</p> <p>Continued ...</p>				



<b>CONTINUATION SHEET</b>	REFERENCE NO. OF DOCUMENT BEING CONTINUED	PAGE	OF
	EP-W-16-015/68HE0H18F1541/P00001	3	3

NAME OF OFFEROR OR CONTRACTOR

WOOD ENVIRONMENT &amp; INFRASTRUCTURE SOLUTIONS, INC.

ITEM NO. (A)	SUPPLIES/SERVICES (B)	QUANTITY (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)
	RTP Finance Center US Environmental Protection Agency RTP-Finance Center (AA216-01) 109 TW Alexander Drive www2.epa.gov/financial/contracts Durham NC 27711  Payment: RTP Finance Center US Environmental Protection Agency RTP-Finance Center (AA216-01) 109 TW Alexander Drive www2.epa.gov/financial/contracts Durham NC 27711 Period of Performance: 07/09/2018 to 07/08/2019				

## ATTACHMENT A

**Title:** NADP Annual Support (2014)  
**Contractor:** Wood Environment & Infrastructure Solutions, Inc.  
**Contract #:** EP-W-16-015  
**Task Order #:** 68HE0H18F1541  
**Period of Performance:** 7/9/2018 to 7/8/2019

*\*Modification #1, changes highlighted in yellow.*

### **EPA Key Personnel**

#### **Task Order Project Officer (TOPO)/Contract Level Project Officer (PO):**

Taylor Macy  
Clean Air Markets Division (OAP/OAR/CAMD)  
1200 Pennsylvania Ave., NW  
Mail Code 6204M  
Washington, DC 20460  
*phone:* (202) 343-9183  
*email:* macy.taylor@epa.gov

#### **Alternate TOPO:**

Melissa Puchalski  
Clean Air Markets Division (OAP/OAR/CAMD)  
1200 Pennsylvania Ave., NW  
Mail Code 6204M  
Washington, DC 20460  
*phone:* (202) 343-9882  
*email:* puchalski.melissa@epa.gov

#### **Contracting Officer (CO):**

Michael Fox  
Contracting Officer  
Administrative Contract Service Center  
1200 Pennsylvania Ave N.W.  
Mail Code 3803R  
Washington DC 20460  
*phone:* (202) 564-2550  
*email:* fox.michael@epa.gov

## **STATEMENT OF WORK** *(revised 3-21-2019)*

### **I. INTRODUCTION**

The Clean Air Status and Trends Network (CASTNET) is a long-term environmental monitoring network that measures changes in ambient air quality and assesses atmospheric deposition over broad geographic regions of the U.S. (<https://www.epa.gov/castnet>). Operating since 1987, CASTNET has evolved into a robust regional monitoring program which currently consists of approximately 95 monitoring stations nationwide. The Environmental Protection Agency (EPA) coordinates the operation of the network in cooperation with numerous federal, tribal, state and local partners.

The primary monitoring objectives of CASTNET are to:

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- Support the primary and secondary ozone NAAQS and provide data on NAAQS compliance in rural areas;
- Monitor the status and trends in regional air quality and atmospheric deposition;
- Assess and report on geographic patterns and long-term, temporal trends in ambient air pollution and atmospheric deposition;
- Improve our understanding of PM and ozone formation;
- Validate and improve atmospheric models;
- Provide data for health-based research and epidemiology studies;
- Assess the effectiveness of EPA's emission reduction programs; and
- Support science and ecosystem studies.

CASTNET sites measure weekly average concentrations of sulfate ( $\text{SO}_4^{2-}$ ), nitrate ( $\text{NO}_3^-$ ), ammonium ( $\text{NH}_4^+$ ), sulfur dioxide ( $\text{SO}_2$ ), nitric acid ( $\text{HNO}_3$ ), chloride ( $\text{Cl}^-$ ) and the base cations ( $\text{Na}^+$ ,  $\text{K}^+$ ,  $\text{Mg}^{2+}$  and  $\text{Ca}^{2+}$ ) using a 3-stage filter pack. In addition, each site may make ancillary measurements, including hourly ozone ( $\text{O}_3$ ), hourly meteorology, ammonia ( $\text{NH}_3$ ) gas using passive devices, and trace-level gases. Trace-level gas monitors include reactive oxidized nitrogen ( $\text{NO}_y$ ), nitric oxide ( $\text{NO}$ ), sulfur dioxide ( $\text{SO}_2$ ) and carbon monoxide ( $\text{CO}$ ). CASTNET  $\text{O}_3$ , meteorological, and trace gas measurements follow the requirements in the Code of Federal Regulations (CFR) and EPA's Quality Assurance Handbook.

### **II. PURPOSE**

The primary purpose of this task order is to provide support for the National Atmospheric Deposition Program's (NADP's) network operations and site support. This includes EPA's Clean Air Markets Division (CAMD) support for analytical chemistry, quality assurance (QA), and network equipment services provided by the Wisconsin State Laboratory of Hygiene (WSLH) for NADP.

### **III. CONTRACT LEVEL STATEMENT OF WORK REFERENCE**

The tasks to be performed under this task order are consistent with the activities authorized in Task 22(Level of Effort) from the contract's Statement of Work.

### **IV. TECHNICAL DIRECTION**

## 1. Prepare a Technical Proposal & Cost Estimate

The Contractor shall prepare a Technical Proposal and Cost Estimate in accordance with the terms and conditions of contract clauses B.1 entitled Fixed Rates for Services – Indefinite delivery/Indefinite quantity contract.

## 2. NADP Participation

The contractor shall coordinate with NADP's Program Office (PO) and Central Analytical Laboratory to provide chemical and analytical, data validation, and site support services for all NADP's National Trends Network (NTN), Ammonia Monitoring Network (AMoN), and Atmospheric Mercury Network (AMNet) sites listed in Tables 1, 2, and 3, respectively. EPA's CAMD supports the chemical analysis, data validation, network equipment depot, and PO coordination for 32 NTN sites; chemical analysis and PO coordination of 71 AMoN sites; and PO coordination of 2 AMNet sites. This modified SOW includes the addition of the Duke Forest Flux Tower AMoN site (NC98).

The contractor shall coordinate with NADP's PO to provide quality assurance services for NTN and AMNet to ensure conformance with NADP's network quality assurance plans and procedures for field and laboratory operations and data management.

The contractor shall coordinate with NADP's Program Office to provide support for use of Parameter-elevation Regressions on Independent Slopes *Model (PRISM)*, which produces digital grids of precipitation estimates from many precipitation-monitoring networks.

Table 1 NADP's NTN sites supported by EPA's CAMD

NTN Site ID	Site Name
AL99	Sand Mountain Ag Exp Station
AZ98	Chiricahua
CO08	Four Mile Park
CO10	Gothic
CO92	Sunlight Peak
CO94	Sugarloaf
CT15	Abington
FL03	Bradford Forest
FL23	Sumatra
GA20	Bellville
IL11	Bondville
IL46	Alhambra
ME04	Carrabassett Valley
MI51	Unionville
MI52	Ann Arbor
MI98	Raco
MN18	Fernberg
NC06	Beaufort
NJ39	Cattus Island County Park

NJ99	Washington Crossing
NY22	Akwesasne Mohawk - Fort Covington
NY52	Bennett Bridge
NY67	Connecticut Hill
OH54	Deer Creek State Park
OR97	Hyslop Farm
PA00	Arendtsville
TN04	Speedwell
VA13	Horton's Station
VA24	Prince Edward
WA21	LaGrande
WI35	Perkinstown
WV05	Cedar Creek State Park

Table 2 NADP AMoN sites supported by EPA's CAMD

AMoN Site ID	Site Name
AL99	Sand Mt Research & Extension Ctr
AR03	Caddo Valley
CO10	Gothic
CO13	Fort Collins
CT15	Abington
FL19	Indian River
FL23	Sumatra
GA41	Georgia Station
ID07	Nez Pearce
IL11	Bondville (3 and 1)
IL37	Stockton
IL46	Alhambra
IN20	Roush Lake
IN22	SW Purdue Ag Center )
IN99	Indianapolis
KS31	Konza Prairie
KS97	Kickapoo Tribe - Powhattan
KY03	Mackville
KY29	Crockett
KY98	Cadiz
MD06	Blackwater NWR
ME93	Ashland
MI51	Unionville
MI52	Ann Arbor
MI95	Hoxeyville
MI96	Detroit
MN18	Fernberg (3 and 1)
MN02	Red Lake
MS30	Coffeeville
NC02	Cranberry

NC06	Carteret
NC25	Coweeta
NC26	Candor
NC30	Duke Forest
NC35	Clinton Crops Research Station
NC98	Duke Forest Flux Tower
NE98	Santee
NH02	Hubbard Brook
NJ98	Washington Crossing- CASTNET
NM98	Navajo Lake
NM99	Farmington
NY20	Huntington Wildlife
NY67	Ithaca (3 and 1)
NY91	Claryville
NY94	Nick's Lake
NY98	Whiteface Mountain
OH02	Athens
OH09	Oxford
OH27	Cincinnati
OH54	Deer Creek State Park
OH99	Quaker City
OK99	Stilwell
PA00	Arendtsville
PA29	Kane Experimental Forest
PA96	Penn State - Fairbrook Park
PA56	M. K. Goddard
PA97	Laurel Hill
SC05	Cape Romain National Wildlife Refuge
TN04	Speedwell
TN07	Edgar Evins
TX41	Alabama-Coushatta
TX43	Canonceta
VA13	Horton's Station
VA24	Prince Edward
VT99	Underhill
WI07	Mayville
WI35	Perkinstown
WV05	Cedar Creek State Park
WV18	Parsons
WY06	Pinedale
WY95	Brooklyn Lake

Table 3 NADP's AMNet sites supported by EPA's CAMD

AMNet Site ID	Site Name
NJ30	New Brunswick
NJ54	Elizabeth Lab

## **V. DELIVERABLES AND SCHEDULE**

### **1. Technical Proposal & Cost Estimate**

The contractor shall deliver a Task Order Proposal and cost estimate in accordance with clause B.7 Task Order Ordering Procedures of the contract. The proposal shall be submitted 10 days after receipt of the SOW.

### **2. Monthly Progress Report**

The contractor shall prepare and submit a monthly progress report by the 15<sup>th</sup> of each month summarizing the progress made, issues encountered or expected, work planned for the next reporting period and costs. These reports shall comply with contract clauses F.1 Monthly Progress Report and F-5 Reports of work. Reports shall be delivered electronically.

#### **Distribution of Deliverables:**

Addressee	Copies
EPA Contracting Officer (Mike Fox)	1
EPA Task Order Project Officer (Taylor Macy)	1
EPA Alternate TOPO (Melissa Puchalski)	1

EP-W-16-015  
Order#: 68HE0H18F1541  
Project#: 2014  
Mod#: P00001

**ATTACHMENT B**  
**SUMMARY OF TASK ORDER OBLIGATION/CEILING AMOUNTS**

Total Funding/Obligation Amounts			
Period	Previous Amount	This Action	Amount
Base Period	\$501,975.52	\$8,553.85	\$510,529.37
<b>Total</b>	<b>\$501,975.52</b>	<b>\$8,553.85</b>	<b>\$510,529.37</b>

Total Task Order Ceiling			
Period	Previous Amount	This Action	Amount
Base Period	\$508,029.00	\$2,659.00	\$510,688.00
<b>Total</b>	<b>\$508,029.00</b>	<b>\$2,659.00</b>	<b>\$510,688.00</b>

**Note:** This task order is incrementally funded in accordance with contract clause B.5 Limitation of Government's Obligation (EPA-B-32-103).



<b>AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT</b>		1. CONTRACT ID CODE		PAGE OF PAGES 1 2	
2. AMENDMENT/MODIFICATION NO. P00002		3. EFFECTIVE DATE See Block 16C		4. REQUISITION/PURCHASE REQ. NO.	
5. PROJECT NO. (If applicable) 2014		6. ISSUED BY HQAD		7. ADMINISTERED BY (If other than Item 6) CODE	
8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP Code) WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS, INC. Attn: JOSEPH FARRELL 751 Arbor Way Ste 180 Blue Bell PA 194221972		(X)		9A. AMENDMENT OF SOLICITATION NO.	
CODE 038086125		FACILITY CODE		9B. DATED (SEE ITEM 11)	
		X		10A. MODIFICATION OF CONTRACT/ORDER NO. EP-W-16-015 68HE0H18F1541	
				10B. DATED (SEE ITEM 13) 06/28/2018	

**11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS**

☐ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers ☐ is extended. ☐ is not extended.  
Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods: (a) By completing Items 8 and 15, and returning \_\_\_\_\_ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or electronic communication which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGEMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by letter or electronic communication, provided each letter or electronic communication makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)  
See Schedule Net Decrease: -\$2,522.37

**13. THIS ITEM ONLY APPLIES TO MODIFICATION OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.**

CHECK ONE	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.
	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation data, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).
	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
X	D. OTHER (Specify type of modification and authority) EPA-B-32-103 - LIMITATION OF GOVERNMENT'S OBLIGATION

**E. IMPORTANT:** Contractor ☒ is not ☐ is required to sign this document and return \_\_\_\_\_ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)

DUNS Number: 038086125

The purpose of this modification is to de-obligate funding in the amount of \$2,522.37 from this task order.

TOCOR: Taylor Macy

LIST OF CHANGES:

Reason for Modification: Funding Only Action

Obligated Amount for this Modification: -\$2,522.37

New Total Obligated Amount for this Award: \$508,007.00

Incremental Funded Amount changed: from \$510,529.37 to \$508,007.00

Continued ...

Except as provided herein, all terms and conditions of the document referenced in Item 9 A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)		16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print) Michael C. Fox	
15B. CONTRACTOR/OFFEROR  (Signature of person authorized to sign)	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA  (Signature of Contracting Officer)	16C. DATE SIGNED 10/16/2019

<b>CONTINUATION SHEET</b>	REFERENCE NO. OF DOCUMENT BEING CONTINUED	PAGE	OF
	EP-W-16-015/68HE0H18F1541/P00002	2	2

NAME OF OFFEROR OR CONTRACTOR

WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS, INC.

ITEM NO. (A)	SUPPLIES/SERVICES (B)	QUANTITY (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)
	<p>CHANGES FOR LINE ITEM NUMBER: 1</p> <p>Obligated Amount for this Modification: -\$2,522.37</p> <p>Incremental Funded Amount changed from \$510,529.37 to \$508,007.00</p> <p>CHANGES FOR ACCOUNTING CODE:</p> <p>19-20-C-58D5-000A45-2505-1958DC9032-001</p> <p>Amount changed from \$8,553.85 to \$6,031.48</p> <p>Payment:</p> <p>RTP Finance Center</p> <p>US Environmental Protection Agency</p> <p>RTP-Finance Center (AA216-01)</p> <p>109 TW Alexander Drive</p> <p><a href="http://www2.epa.gov/financial/contracts">www2.epa.gov/financial/contracts</a></p> <p>Durham NC 27711</p> <p>Period of Performance: 07/09/2018 to 07/08/2019</p>				

<b>SOLICITATION/CONTRACT/ORDER FOR COMMERCIAL ITEMS</b> <i>OFFEROR TO COMPLETE BLOCKS 12, 17, 23, 24, &amp; 30</i>				1. REQUISITION NUMBER PR-OAR-18-01069		PAGE OF 1 3		
2. CONTRACT NO. EP-W-16-015			3. AWARD/ EFFECTIVE DATE 07/25/2018		4. ORDER NUMBER 68HE0H18F1543		5. SOLICITATION NUMBER	
6. SOLICITATION ISSUE DATE								
7. <b>FOR SOLICITATION INFORMATION CALL:</b>		a. NAME Michael Fox			b. TELEPHONE NUMBER (No collect calls) 202-564-2550		8. OFFER DUE DATE/LOCAL TIME ET	
9. ISSUED BY HPOD US Environmental Protection Agency William Jefferson Clinton Building 1200 Pennsylvania Avenue, N. W. Mail Code: 3803R Washington DC 20460				10. THIS ACQUISITION IS <input checked="" type="checkbox"/> UNRESTRICTED OR <input type="checkbox"/> SET ASIDE: % FOR:  <div style="display: flex; justify-content: space-between;"> <div> <input type="checkbox"/> SMALL BUSINESS  <input type="checkbox"/> HUBZONE SMALL BUSINESS  <input type="checkbox"/> SERVICE-DISABLED VETERAN-OWNED SMALL BUSINESS </div> <div> <input type="checkbox"/> WOMEN-OWNED SMALL BUSINESS (WOSB) ELIGIBLE UNDER THE WOMEN-OWNED SMALL BUSINESS PROGRAM  <input type="checkbox"/> EDWOSB  <input type="checkbox"/> 8(A) </div> <div> NAICS: 541620   SIZE STANDARD: \$15.0 </div> </div>				
11. DELIVERY FOR FOB DESTINATION UNLESS BLOCK IS MARKED <input checked="" type="checkbox"/> SEE SCHEDULE		12. DISCOUNT TERMS		13a. THIS CONTRACT IS A RATED ORDER UNDER DPAS (15 CFR 700)		13b. RATING		
15. DELIVER TO OAR/OAQPS/AQAD US Environmental Protection Agency Mail Code: C304-02 109 TW Alexander Drive Durham NC 27711		16. ADMINISTERED BY HPOD US Environmental Protection Agency William Jefferson Clinton Building 1200 Pennsylvania Avenue, N. W. Mail Code: 3803R Washington DC 20460		14. METHOD OF SOLICITATION <input type="checkbox"/> RFQ <input type="checkbox"/> IFB <input type="checkbox"/> RFP				
17a. CONTRACTOR/ OFFEROR WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS, INC. Attn: JOSEPH FARRELL 751 Arbor Way Ste 180 Blue Bell PA 194221972		18a. PAYMENT WILL BE MADE BY RTP Finance Center US Environmental Protection Agency RTP-Finance Center (AA216-01) 109 TW Alexander Drive www2.epa.gov/financial/contracts Durham NC 27711		17b. CHECK IF REMITTANCE IS DIFFERENT AND PUT SUCH ADDRESS IN OFFER				
19. ITEM NO.		20. SCHEDULE OF SUPPLIES/SERVICES		21. QUANTITY		22. UNIT		
23. UNIT PRICE		24. AMOUNT						
25. ACCOUNTING AND APPROPRIATION DATA See Schedule		26. TOTAL AWARD AMOUNT (For Govt. Use Only) \$107,796.00						
27a. SOLICITATION INCORPORATES BY REFERENCE FAR 52.212-1, 52.212-4, FAR 52.212-3 AND 52.212-5 ARE ATTACHED. ADDENDA				27b. CONTRACT/PURCHASE ORDER INCORPORATES BY REFERENCE FAR 52.212-4, FAR 52.212-5 IS ATTACHED. ADDENDA				
28. CONTRACTOR IS REQUIRED TO SIGN THIS DOCUMENT AND RETURN COPIES TO ISSUING OFFICE. CONTRACTOR AGREES TO FURNISH AND DELIVER ALL ITEMS SET FORTH OR OTHERWISE IDENTIFIED ABOVE AND ON ANY ADDITIONAL SHEETS SUBJECT TO THE TERMS AND CONDITIONS SPECIFIED.				29. AWARD OF CONTRACT: _____ OFFER DATED _____. YOUR OFFER ON SOLICITATION (BLOCK 5), INCLUDING ANY ADDITIONS OR CHANGES WHICH ARE SET FORTH HEREIN, IS ACCEPTED AS TO ITEMS:				
30a. SIGNATURE OF OFFEROR/CONTRACTOR				31a. UNITED STATES OF AMERICA (SIGNATURE OF CONTRACTING OFFICER)  Michael C. Fox ELECTRONIC SIGNATURE				
30b. NAME AND TITLE OF SIGNER (Type or print)		30c. DATE SIGNED		31b. NAME OF CONTRACTING OFFICER (Type or print) Michael C. Fox		31c. DATE SIGNED 07/24/2018		

19. ITEM NO.	20. SCHEDULE OF SUPPLIES/SERVICES	21. QUANTITY	22. UNIT	23. UNIT PRICE	24. AMOUNT
0001	<p>the Attachment A Statement of Work (4 pages) and the accepted technical proposal and cost estimate dated July 12, 2018 (7 pages) in the amount of \$107,796.00.</p> <p>This is a Time-and-Materials (T&amp;M) task order with a total ceiling price of \$107,796.00, which the Contractor is not authorized to exceed. The Contractor exceeds at its own risk.</p> <p>The total obligated/funded ceiling amount for this order is currently \$107,794.56. This order is incrementally funded as detailed in Attachment B Summary of Amounts and Ceilings and Attachment B is hereby incorporated (1 page).</p> <p>Contracting Officer's Representative (COR) for this task order: Joann Rice, (919)541-3372, Rice.Joann@epa.gov</p> <p>Alternate COR: Beth Landis, (919)541-2262, Landis.Elizabeth@epa.gov</p> <p>The services of this order are for severable. TOCOR: Beth Landis Period of Performance: 07/25/2018 to 07/08/2019</p> <p>Supplemental Laboratory and Filter Handling Continued ...</p>				

32a. QUANTITY IN COLUMN 21 HAS BEEN

☐ RECEIVED    ☐ INSPECTED    ☐ ACCEPTED, AND CONFORMS TO THE CONTRACT, EXCEPT AS NOTED: \_\_\_\_\_

32b. SIGNATURE OF AUTHORIZED GOVERNMENT REPRESENTATIVE		32c. DATE	32d. PRINTED NAME AND TITLE OF AUTHORIZED GOVERNMENT REPRESENTATIVE	
32e. MAILING ADDRESS OF AUTHORIZED GOVERNMENT REPRESENTATIVE			32f. TELEPHONE NUMBER OF AUTHORIZED GOVERNMENT REPRESENTATIVE	
			32g. E-MAIL OF AUTHORIZED GOVERNMENT REPRESENTATIVE	
33. SHIP NUMBER	34. VOUCHER NUMBER	35. AMOUNT VERIFIED CORRECT FOR	36. PAYMENT  <input type="checkbox"/> COMPLETE <input type="checkbox"/> PARTIAL <input type="checkbox"/> FINAL	37. CHECK NUMBER
<input type="checkbox"/> PARTIAL <input type="checkbox"/> FINAL				
38. S/R ACCOUNT NUMBER	39. S/R VOUCHER NUMBER	40. PAID BY		
41a. I CERTIFY THIS ACCOUNT IS CORRECT AND PROPER FOR PAYMENT		42a. RECEIVED BY ( <i>Print</i> )		
41b. SIGNATURE AND TITLE OF CERTIFYING OFFICER		42b. RECEIVED AT ( <i>Location</i> )		
		42c. DATE REC'D (YY/MM/DD)		42d. TOTAL CONTAINERS

NAME OF OFFEROR OR CONTRACTOR  
WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS, INC.

ITEM NO. (A)	SUPPLIES/SERVICES (B)	QUANTITY (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)
	Support for CSN  Accounting Info: 18-E1-53GS-000A04XPM-4183-1853PM8084-001 BFY: 18 Fund: E1 Budget Org: 53GS Program (PRC): 000A04XPM Budget (BOC): 4183 DCN - Line ID: 1853PM8084-001 Funding Flag: Complete Funded: \$107,794.56				

**ATTACHMENT A**  
**Statement of Work**

<b>Title:</b>	Supplemental Laboratory and Filter Handling Support for CSN
<b>Contractor:</b>	Amec Foster Wheeler
<b>Contract #:</b>	EP-W-16-015
<b>Project #:</b>	2013
<b>Period of Performance:</b>	7/25/2018 to 7/08/2019

**EPA Key Personnel**

**Task Order Project Officer (TOPO)/Contract Level Project Officer (PO):**

Joann Rice  
Air Quality Assessment Division (OAR/OAQPS/AQAD)  
Mail Drop C304-06  
Research Triangle Park, NC 27711  
Phone: (919) 541-3372  
Email: rice.joann@epa.gov

**Alternate TOPO:**

Laurie Trinca  
Air Quality Assessment Division (OAR/OAQPS/AQAD)  
Mail Drop C304-06  
Research Triangle Park, NC 27711  
*phone:* (919) 541-2262  
*email:* trinca.laurie@epa.gov

**Contracting Officer (CO):**

Mike Fox  
Contracting Officer  
Administrative Contract Service Center  
1200 Pennsylvania Ave N.W.  
Mail Code 3803R  
Washington DC 20460  
*phone:* (202) 564-2550  
*email:* [fox.michael@epa.gov](mailto:fox.michael@epa.gov)

## STATEMENT OF WORK

### I. INTRODUCTION

The Clean Air Status and Trends Network (CASTNET) is a long-term environmental monitoring network that measures changes in ambient air quality and assesses atmospheric deposition over broad geographic regions of the U.S. (<https://www.epa.gov/castnet>). Operating since 1987, CASTNET has evolved into a robust regional monitoring program which currently consists of approximately 95 monitoring stations nationwide. The Environmental Protection Agency (EPA) coordinates the operation of the network in cooperation with numerous federal, tribal, state and local partners.

The primary monitoring objectives of CASTNET are to:

- Provide high quality data on atmospheric deposition, rural ground level ozone and other forms of atmospheric pollution;
- Support the primary and secondary ozone NAAQS and provide data on NAAQS compliance in rural areas;
- Monitor the status and trends in regional air quality and atmospheric deposition;
- Assess and report on geographic patterns and long-term, temporal trends in ambient air pollution and atmospheric deposition;
- Improve our understanding of PM and ozone formation;
- Validate and improve atmospheric models;
- Provide data for health-based research and epidemiology studies;
- Assess the effectiveness of EPA's emission reduction programs; and
- Support science and ecosystem studies.

CASTNET sites measure weekly average concentrations of sulfate ( $\text{SO}_4^{2-}$ ), nitrate ( $\text{NO}_3^-$ ), ammonium ( $\text{NH}_4^+$ ), sulfur dioxide ( $\text{SO}_2$ ), nitric acid ( $\text{HNO}_3$ ), chloride ( $\text{Cl}^-$ ) and the base cations ( $\text{Na}^+$ ,  $\text{K}^+$ ,  $\text{Mg}^{2+}$  and  $\text{Ca}^{2+}$ ) using a 3-stage filter pack. In addition, each site may make ancillary measurements, including hourly ozone ( $\text{O}_3$ ), hourly meteorology, ammonia ( $\text{NH}_3$ ) gas using passive devices, and trace-level gases. Trace-level gas monitors include reactive oxidized nitrogen ( $\text{NO}_y$ ), nitric oxide ( $\text{NO}$ ), sulfur dioxide ( $\text{SO}_2$ ) and carbon monoxide ( $\text{CO}$ ). CASTNET  $\text{O}_3$ , meteorological, and trace gas measurements follow the requirements in the Code of Federal Regulations (CFR) and EPA's Quality Assurance Handbook.

### II. PURPOSE

The primary purpose of this task order is to pre-wash nylon filters for the Chemical Speciation Network (CSN), conduct acceptance testing, and support a 25mm Teflon filter study. Once the filters have been washed and pass the CSN acceptance testing criteria, they will be shipped to Wood PLC (formerly Amec Foster Wheeler) for use in the routine network, which functions under a contract between Wood PLC and EPA's OAQPS. For the 25mm Teflon filter study, Wood PLC will be responsible for inserting 25mm filter holders and 25mm Teflon filters into the MetOne SASS/SuperSASS stainless steel modules for sample collection. The Task Order Project Officer shall provide technical direction for performance of specific tasks under this task order.

### III. CONTRACT LEVEL STATEMENT OF WORK REFERENCE

The tasks to be performed under this task order are consistent with the activities authorized in CLIN 22 of the contract's Statement of Work.

## **IV. TECHNICAL DIRECTION**

### **1. Prepare a Technical Proposal & Cost Estimate**

The Contractor shall prepare a Task Order Proposal in accordance with the terms and conditions of contract clauses B.2 entitled Fixed Rates for Services – Indefinite delivery/Indefinite quantity contract.

### **2. Pre-wash and acceptance test the Chemical Special Network (CSN) Nylon Filters**

The Contractor shall prewash and acceptance test nylon filters for the Chemical Speciation Network. Wood PLC (formerly Amec Foster Wheeler) shall provide the filters for washing and acceptance testing (procured under the CSN contract). The contractor shall follow the SOP for Cleaning Nylon Filters Used for the Collection of PM<sub>2.5</sub> Material

(<https://www3.epa.gov/ttnamti1/files/ambient/pm25/spec/pm25nyloncleaningsop.pdf>) for cleaning and the Standard Operating Procedure for Procurement and Acceptance Testing of Teflon, Nylon, and Quartz Filters (<https://www3.epa.gov/ttnamti1/files/ambient/pm25/spec/RTIFilterProcurementSOPFINAL.pdf>) for acceptance testing. The cleaned filters must meet EPA's acceptance testing criteria for the CSN, of an average for each cleaning batch that is  $\leq 1$  ug/filter for each ion (chloride, ammonium, sodium, potassium, nitrate and sulfate). Acceptance testing shall occur on 5% of the filters per batch that is cleaned, likely to occur on a weekly basis. We anticipate approximately 300-600 filters will be cleaned on a weekly basis, and acceptance testing results shall be submitted to OAQPS within 7 days of completion of the pre-cleaning and drying. Data shall be summarized and delivered to the CORs in an agreed upon format. The contractor shall provide cleaned filters and acceptance testing results to Wood PLC on a weekly basis for deployment in network. The CSN uses up to 1500 nylon filters per month. Should the CSN filter manufacturer begin providing nylon filters that meet EPA's acceptance test criteria without the need for washing, the TOPO shall inform the contractor that there is no longer a need for these services. The maximum number of filters to be pre-washed and acceptance tested under this task is 18,000.

### **3. 25mm Teflon Filter Special Study – Filter Handling**

Wood PLC shall provide filter handling support for a 25mm Teflon filter special study for the CSN. They shall insert 25mm filter holders, stainless steel screens, and Teflon filters into the MetOne SASS/SuperSASS modules for sample collection at the six collocated CSN sites. EPA will provide the filter holders, screens, and Teflon filters. The six collocated sites are: Bakersfield and Riverside, CA; Deer Park, TX; Roxbury, MA; G.T. Craig, OH; and Rutgers, NJ. The 25mm Teflon filter collection will occur every 6<sup>th</sup> day for one year. Once the filters are collected, they will be packaged and shipped under ice by Wood PLC to UC Davis for multi-element analysis by X-Ray Fluorescence analysis. Filters shall be shipped to UCD monthly.

### **4. Travel to Meetings**

None anticipated.

## **V. DELIVERABLES AND SCHEDULE**

### **1. Proposal**

The contractor shall deliver a Task Order Proposal in accordance with clause B.7 Task Order Ordering Procedures of the contract. The proposal shall be submitted 10 days after receipt of the SOW.

### **2. Monthly Progress Report**

The contractor shall prepare and submit a monthly progress report by the 15<sup>th</sup> of each month summarizing the progress made, issues encountered or expected, work planned for the next reporting period and costs. These



reports shall comply with contract clauses F.3 Reports of Work and F.5 Monthly Progress Report. Reports shall be delivered electronically.

**Distribution of Deliverables:**

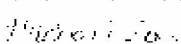
Addressee	Copies
EPA Contracting Officer (Mike Fox)	1
EPA Project Officer (Melissa Puchalski)	1
EPA TOPO (Joann Rice)	1
EPA Alternate (Laurie Trinca)	1
EPA Technical Advisor (Taylor Macy)	1

**ATTACHMENT B**  
**SUMMARY OF TASK ORDER OBLIGATION/CEILING AMOUNTS**

Total Funding/Obligation Amounts			
Period	Previous Amount	This Action	Amount
Base Period		\$107,794.56	\$107,794.56
<b>Total</b>		<b>\$107,794.56</b>	<b>\$107,794.56</b>

Total Task Order Ceiling			
Period	Previous Amount	This Action	Amount
Base Period	-	\$107,796.00	\$107,796.00
<b>Total</b>	-	<b>\$107,796.00</b>	<b>\$107,796.00</b>

**Note:** This task order is incrementally funded in accordance with contract clause B.5 Limitation of Government's Obligation (EPA-B-32-103).

<b>AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT</b>				1. CONTRACT ID CODE		PAGE OF PAGES	
						1 3	
2. AMENDMENT/MODIFICATION NO.		3. EFFECTIVE DATE		4. REQUISITION/PURCHASE REQ. NO.		5. PROJECT NO. (If applicable)	
P00001		See Block 16C		PR-OAR-19-00162			
6. ISSUED BY		CODE		7. ADMINISTERED BY (If other than Item 6)		CODE	
HPOD							
US Environmental Protection Agency William Jefferson Clinton Building 1200 Pennsylvania Avenue, N. W. Mail Code: 3803R Washington DC 20460							
8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP Code)				(x)			
WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS, INC. Attn: JOSEPH FARRELL 751 Arbor Way Ste 180 Blue Bell PA 194221972							
				9A. AMENDMENT OF SOLICITATION NO.			
				9B. DATED (SEE ITEM 11)			
				x 10A. MODIFICATION OF CONTRACT/ORDER NO.			
				EP-W-16-015			
				68HE0H18F1543			
				10B. DATED (SEE ITEM 13)			
				07/24/2018			
CODE 038086125		FACILITY CODE					
<b>11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS</b>							
<input type="checkbox"/> The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers <input type="checkbox"/> is extended. <input type="checkbox"/> is not extended. Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods: (a) By completing Items 8 and 15, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or electronic communication which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGEMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by letter or electronic communication, provided each letter or electronic communication makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.							
12. ACCOUNTING AND APPROPRIATION DATA (If required)				Net Increase:		\$3,477.44	
See Schedule							
<b>13. THIS ITEM ONLY APPLIES TO MODIFICATION OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.</b>							
CHECK ONE	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.						
	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation data, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).						
	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:						
X	D. OTHER (Specify type of modification and authority) Mutual Agreement of the Parties						
<b>E. IMPORTANT:</b> Contractor <input checked="" type="checkbox"/> is not <input type="checkbox"/> is required to sign this document and return _____ copies to the issuing office.							
14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)							
DUNS Number: 038086125							
The purpose of this modification is to incorporate the revised statement of work in Accordance with Attachment A, Revised Statement of Work (4 pages) and the revised technical and cost proposal dated November 26, 2018 (7 pages). The total price of this task order is being increased by \$3,476.00, from \$107,796.00 to \$111,272.00. Funding in the amount of \$3,477.44 is being added to this task order. This order is fully funded as detailed in Attachment B Summary of Amounts and Ceilings and Attachment B is hereby incorporated (1 page).							
This is a Time-and-Materials (T&M) task order with a total ceiling price of \$111,272.00, which the Contractor is not authorized to exceed. The Contractor exceeds at its own risk. Continued ...							
Except as provided herein, all terms and conditions of the document referenced in Item 9 A or 10A, as heretofore changed, remains unchanged and in full force and effect.							
15A. NAME AND TITLE OF SIGNER (Type or print)				16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)			
				Michael C. Fox			
15B. CONTRACTOR/OFFEROR		15C. DATE SIGNED		16B. UNITED STATES OF AMERICA		16C. DATE SIGNED	
				ELECTRONIC SIGNATURE 		11/27/2018	
(Signature of person authorized to sign)				(Signature of Contracting Officer)			

<b>CONTINUATION SHEET</b>	REFERENCE NO. OF DOCUMENT BEING CONTINUED	PAGE	OF
	EP-W-16-015/68HE0H18F1543/P00001	2	3

NAME OF OFFEROR OR CONTRACTOR

WOOD ENVIRONMENT &amp; INFRASTRUCTURE SOLUTIONS, INC.

ITEM NO. (A)	SUPPLIES/SERVICES (B)	QUANTITY (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)
	<p>The total obligated/funded ceiling amount for this order is currently \$111,272.00. This order is fully funded as detailed in Attachment B Summary of Amounts and Ceilings and Attachment B is hereby incorporated (1 page).</p> <p>LIST OF CHANGES:</p> <p>Reason for Modification: Supplemental Agreement for work within scope</p> <p>Total Amount for this Modification: \$3,476.00 New</p> <p>Total Amount for this Version: \$111,272.00 New</p> <p>Total Amount for this Award: \$111,272.00</p> <p>Obligated Amount for this Modification: \$3,477.44</p> <p>New Total Obligated Amount for this Award: \$111,272.00</p> <p>Incremental Funded Amount changed: from \$107,794.56 to \$111,272.00</p> <p>CHANGES FOR LINE ITEM NUMBER: 1</p> <p>Total Amount changed from \$107,796.00 to \$111,272.00</p> <p>Obligated Amount for this Modification: \$3,477.44</p> <p>Incremental Funded Amount changed from \$107,794.56 to \$111,272.00</p> <p>FOB changed from Destination to</p> <p>CHANGES FOR DELIVERY LOCATION: OAR/OAQPS/AQAD</p> <p>Amount changed from \$107,796.00 to \$111,272.00</p> <p>NEW ACCOUNTING CODE ADDED:</p> <p>Account code:</p> <p>18-E1-53GS-000A04XPM-4183-1953PM9011-001</p> <p>Beginning FiscalYear 18</p> <p>Ending Fiscal Year</p> <p>Fund (Appropriation) E1</p> <p>Budget Organization 53GS</p> <p>Program (PRC) 000A04XPM</p> <p>Budget (BOC) 4183</p> <p>Job # (Site/Project)</p> <p>Cost Organization</p> <p>DCN-LineID 1953PM9011-001</p> <p>Amount: \$3,477.44</p> <p>Subject To Funding: N</p> <p>Payment Address:</p> <p>RTP Finance Center</p> <p>US Environmental Protection Agency</p> <p>RTP-Finance Center (AA216-01)</p> <p>109 TW Alexander Drive</p> <p>Continued ...</p>				

<b>CONTINUATION SHEET</b>	REFERENCE NO. OF DOCUMENT BEING CONTINUED	PAGE	OF
	EP-W-16-015/68HE0H18F1543/P00001	3	3

NAME OF OFFEROR OR CONTRACTOR  
WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS, INC.

ITEM NO. (A)	SUPPLIES/SERVICES (B)	QUANTITY (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)
	<a href="http://www2.epa.gov/financial/contracts">www2.epa.gov/financial/contracts</a> Durham NC 27711  Payment: RTP Finance Center US Environmental Protection Agency RTP-Finance Center (AA216-01) 109 TW Alexander Drive <a href="http://www2.epa.gov/financial/contracts">www2.epa.gov/financial/contracts</a> Durham NC 27711 Period of Performance: 07/25/2018 to 07/08/2019				

**ATTACHMENT A**  
*(revised November 15, 2018)*

<b>Title:</b>	Supplemental Laboratory and Filter Handling Support for CSN
<b>Contractor:</b>	Wood Environment & Infrastructure Solutions Inc.
<b>Contract #:</b>	EP-W-16-015
<b>Task Order #:</b>	2013
<b>Period of Performance:</b>	7/09/2018 to 7/08/2019

**EPA Key Personnel**

**Task Order Project Officer (TOPO)/Contract Level Project Officer (PO):**

Joann Rice  
Air Quality Assessment Division (OAR/OAQPS/AQAD)  
Mail Drop C304-06  
Research Triangle Park, NC 27711  
Phone: (919) 541-3372  
Email: rice.joann@epa.gov

**Alternate TOPO:**

Laurie Trinca  
Air Quality Assessment Division (OAR/OAQPS/AQAD)  
Mail Drop C304-06  
Research Triangle Park, NC 27711  
*phone:* (919) 541-2262  
*email:* trinca.laurie@epa.gov

**Contracting Officer (CO):**

Mike Fox  
Contracting Officer  
Administrative Contract Service Center  
1200 Pennsylvania Ave N.W.  
Mail Code 3803R  
Washington DC 20460  
*phone:* (202) 564-2550  
*email:* fox.michael@epa.gov

## STATEMENT OF WORK

### I. INTRODUCTION

The Clean Air Status and Trends Network (CASTNET) is a long-term environmental monitoring network that measures changes in ambient air quality and assesses atmospheric deposition over broad geographic regions of the U.S. (<https://www.epa.gov/castnet>). Operating since 1987, CASTNET has evolved into a robust regional monitoring program which currently consists of approximately 95 monitoring stations nationwide. The Environmental Protection Agency (EPA) coordinates the operation of the network in cooperation with numerous federal, tribal, state and local partners.

The primary monitoring objectives of CASTNET are to:

- Provide high quality data on atmospheric deposition, rural ground level ozone and other forms of atmospheric pollution;
- Support the primary and secondary ozone NAAQS and provide data on NAAQS compliance in rural areas;
- Monitor the status and trends in regional air quality and atmospheric deposition;
- Assess and report on geographic patterns and long-term, temporal trends in ambient air pollution and atmospheric deposition;
- Improve our understanding of PM and ozone formation;
- Validate and improve atmospheric models;
- Provide data for health-based research and epidemiology studies;
- Assess the effectiveness of EPA's emission reduction programs; and
- Support science and ecosystem studies.

CASTNET sites measure weekly average concentrations of sulfate ( $\text{SO}_4^{2-}$ ), nitrate ( $\text{NO}_3^-$ ), ammonium ( $\text{NH}_4^+$ ), sulfur dioxide ( $\text{SO}_2$ ), nitric acid ( $\text{HNO}_3$ ), chloride ( $\text{Cl}^-$ ) and the base cations ( $\text{Na}^+$ ,  $\text{K}^+$ ,  $\text{Mg}^{2+}$  and  $\text{Ca}^{2+}$ ) using a 3-stage filter pack. In addition, each site may make ancillary measurements, including hourly ozone ( $\text{O}_3$ ), hourly meteorology, ammonia ( $\text{NH}_3$ ) gas using passive devices, and trace-level gases. Trace-level gas monitors include reactive oxidized nitrogen ( $\text{NO}_y$ ), nitric oxide ( $\text{NO}$ ), sulfur dioxide ( $\text{SO}_2$ ) and carbon monoxide ( $\text{CO}$ ). CASTNET  $\text{O}_3$ , meteorological, and trace gas measurements follow the requirements in the Code of Federal Regulations (CFR) and EPA's Quality Assurance Handbook.

### II. PURPOSE

The primary purpose of this task order is to pre-wash nylon filters for the Chemical Speciation Network (CSN), conduct acceptance testing, and support a 25mm Teflon filter study. Once the filters have been washed and pass the CSN acceptance testing criteria, they will be shipped to Wood PLC (formerly Amec Foster Wheeler) for use in the routine network, which functions under a contract between Wood PLC and EPA's OAQPS. For the 25mm Teflon filter study, Wood PLC will be responsible for inserting 25mm filter holders and 25mm Teflon filters into the MetOne SASS/SuperSASS stainless steel modules for sample collection. The Task Order Project Officer shall provide technical direction for performance of specific tasks under this task order.

### III. CONTRACT LEVEL STATEMENT OF WORK REFERENCE

The tasks to be performed under this task order are consistent with the activities authorized in CLIN 22 of the contract's Statement of Work.

## **IV. TECHNICAL DIRECTION**

### **1. Prepare a Technical Proposal & Cost Estimate**

The Contractor shall prepare a Task Order Proposal in accordance with the terms and conditions of contract clauses B.2 entitled Fixed Rates for Services – Indefinite delivery/Indefinite quantity contract.

### **2. Pre-wash and acceptance test the Chemical Special Network (CSN) Nylon Filters**

The Contractor shall prewash and acceptance test nylon filters for the Chemical Speciation Network. Wood PLC (formerly Amec Foster Wheeler) shall provide the filters for washing and conduct acceptance testing (procured under the CSN contract). The contractor shall follow the SOP for Cleaning Nylon Filters Used for the Collection of PM<sub>2.5</sub> Material

(<https://www3.epa.gov/ttnamti1/files/ambient/pm25/spec/pm25nyloncleaningsop.pdf>) for cleaning and the Standard Operating Procedure for Procurement and Acceptance Testing of Teflon, Nylon, and Quartz Filters (<https://www3.epa.gov/ttnamti1/files/ambient/pm25/spec/RTIFilterProcurementSOPFINAL.pdf>) for acceptance testing. The cleaned filters must meet EPA's acceptance testing criteria for the CSN, of an average for each cleaning batch that is  $\leq 1$  ug/filter for each ion (chloride, ammonium, sodium, potassium, nitrate and sulfate). Acceptance testing shall occur on 5% of the filters per batch that is cleaned, likely to occur on a weekly basis. We anticipate approximately 300-600 filters will be cleaned on a weekly basis, and acceptance testing results shall be submitted to OAQPS within 7 days of completion of the pre-cleaning and drying. Data shall be summarized and delivered to the CORs in an agreed upon format. The contractor shall provide cleaned filters and acceptance testing results to Wood PLC on a weekly basis for deployment in network. The CSN uses up to 1500 nylon filters per month. Should the CSN filter manufacturer begin providing nylon filters that meet EPA's acceptance test criteria without the need for washing, the TOPO shall inform the contractor that there is no longer a need for these services. The maximum number of filters to be pre-washed and acceptance tested under this task is 18,000.

### **3. 25mm Teflon Filter Special Study – Filter Handling**

Wood PLC shall provide filter handling support for a 25mm Teflon filter special study for the CSN. They shall insert 25mm filter holders, stainless steel screens, and Teflon filters into the MetOne SASS/SuperSASS modules for sample collection at the six collocated CSN sites. EPA will provide the filter holders, screens, and Teflon filters. The six collocated sites are: Bakersfield and Riverside, CA; Deer Park, TX; Roxbury, MA; G.T. Craig, OH; and Rutgers, NJ. The 25mm Teflon filter collection will occur every 6<sup>th</sup> day for one year. Once the filters are collected, they will be packaged and shipped under ice by Wood PLC to UC Davis for multi-element analysis by X-Ray Fluorescence analysis. Filters shall be shipped to UCD monthly.

### **4. Database Modification for Daily Sampling**

As part of special studies in both Alaska and Utah, three sites will be doing daily sampling during the winters of 2018/2019 and 2019/2020. The three sites are: Cache Valley (Smithfield) and Hawthorne, Utah; and North Pole (Fairbanks), Alaska. Wood PLC shall modify the sample handling database to receive and process filters sampled daily and provide chain of custody files to UC Davis for filter analysis.

### **5. Travel to Meetings**

None anticipated.

## **V. DELIVERABLES AND SCHEDULE**

### **1. Proposal**



The contractor shall deliver a Task Order Proposal in accordance with clause B.7 Task Order Ordering Procedures of the contract. The proposal shall be submitted 10 days after receipt of the SOW.

## **2. Monthly Progress Report**

The contractor shall prepare and submit a monthly progress report by the 15<sup>th</sup> of each month summarizing the progress made, issues encountered or expected, work planned for the next reporting period and costs. These reports shall comply with contract clauses F.3 Reports of Work and F.5 Monthly Progress Report. Reports shall be delivered electronically.

### **Distribution of Deliverables:**

Addressee	Copies
EPA Contracting Officer (Mike Fox)	1
EPA Project Officer (Melissa Puchalski)	1
EPA TOPO (Joann Rice)	1
EPA Alternate (Laurie Trinca)	1
EPA Technical Advisor (Taylor Macy)	1

**ATTACHMENT B**  
**SUMMARY OF TASK ORDER OBLIGATION/CEILING AMOUNTS**

Total Funding/Obligation Amounts			
Period	Previous Amount	This Action	Amount
Base Period	\$107,794.56	\$3,477.44	\$111,772.00
<b>Total</b>	<b>\$107,794.56</b>	<b>\$3,477.44</b>	<b>\$111,772.00</b>

Total Task Order Ceiling			
Period	Previous Amount	This Action	Amount
Base Period	\$107,796.00	\$3,746.00	\$111,772.00
<b>Total</b>	<b>\$107,796.00</b>	<b>\$3,476.00</b>	<b>\$111,772.00</b>

**Note:** This task order is incrementally funded in accordance with contract clause B.5 Limitation of Government's Obligation (EPA-B-32-103).

<b>AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT</b>		1. CONTRACT ID CODE		PAGE OF PAGES 1 2	
2. AMENDMENT/MODIFICATION NO. P00002		3. EFFECTIVE DATE See Block 16C		4. REQUISITION/PURCHASE REQ. NO.	
5. PROJECT NO. (If applicable) 2013		6. ISSUED BY HQAD		7. ADMINISTERED BY (If other than Item 6) CODE	
8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP Code) WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS, INC. Attn: JOSEPH FARRELL 751 Arbor Way Ste 180 Blue Bell PA 194221972		(X)		9A. AMENDMENT OF SOLICITATION NO.	
CODE 038086125		FACILITY CODE		9B. DATED (SEE ITEM 11)	
		X		10A. MODIFICATION OF CONTRACT/ORDER NO. EP-W-16-015 68HE0H18F1543	
				10B. DATED (SEE ITEM 13) 07/24/2018	

**11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS**

☐ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers ☐ is extended. ☐ is not extended.  
Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods: (a) By completing Items 8 and 15, and returning \_\_\_\_\_ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or electronic communication which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGEMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by letter or electronic communication, provided each letter or electronic communication makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)  
See Schedule Net Decrease: -\$43,802.48

**13. THIS ITEM ONLY APPLIES TO MODIFICATION OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.**

CHECK ONE	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.
	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation data, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).
	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
X	D. OTHER (Specify type of modification and authority) EPA-B-32-103 - LIMITATION OF GOVERNMENT'S OBLIGATION

**E. IMPORTANT:** Contractor ☒ is not ☐ is required to sign this document and return \_\_\_\_\_ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)

DUNS Number: 038086125

The purpose of this modification is to de-obligate funding in the amount of \$43,802.48 from this task order.

TOCOR: Beth Landis

LIST OF CHANGES:

Reason for Modification: Funding Only Action

Obligated Amount for this Modification: -\$43,802.48

New Total Obligated Amount for this Award: \$67,469.52

Incremental Funded Amount changed: from \$111,272.00 to \$67,469.52

Continued ...

Except as provided herein, all terms and conditions of the document referenced in Item 9 A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)		16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print) Michael C. Fox	
15B. CONTRACTOR/OFFEROR  (Signature of person authorized to sign)	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA  (Signature of Contracting Officer)	16C. DATE SIGNED 10/16/2019

Previous edition unusable

<b>CONTINUATION SHEET</b>	REFERENCE NO. OF DOCUMENT BEING CONTINUED	PAGE	OF
	EP-W-16-015/68HE0H18F1543/P00002	2	2

NAME OF OFFEROR OR CONTRACTOR

WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS, INC.

ITEM NO. (A)	SUPPLIES/SERVICES (B)	QUANTITY (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)
	<p>CHANGES FOR LINE ITEM NUMBER: 1</p> <p>Obligated Amount for this Modification: -\$43,802.48</p> <p>Incremental Funded Amount changed from \$111,272.00 to \$67,469.52</p> <p>CHANGES FOR ACCOUNTING CODE: 18-E1-53GS-000A04XPM-4183-1853PM8084-001 Amount changed from \$107,794.56 to \$63,992.08</p> <p>Payment:</p> <p>RTP Finance Center US Environmental Protection Agency RTP-Finance Center (AA216-01) 109 TW Alexander Drive www2.epa.gov/financial/contracts Durham NC 27711</p> <p>Period of Performance: 07/25/2018 to 07/08/2019</p>				

<b>SOLICITATION/CONTRACT/ORDER FOR COMMERCIAL ITEMS</b> <i>OFFEROR TO COMPLETE BLOCKS 12, 17, 23, 24, &amp; 30</i>				1. REQUISITION NUMBER PR-OAR-18-01176		PAGE OF 1 3			
2. CONTRACT NO. EP-W-16-015			3. AWARD/ EFFECTIVE DATE		4. ORDER NUMBER 68HE0H18F1544		5. SOLICITATION NUMBER		
7. <b>FOR SOLICITATION INFORMATION CALL:</b>			a. NAME Michael Fox			b. TELEPHONE NUMBER (No collect calls) 202-564-2550		8. OFFER DUE DATE/LOCAL TIME ET	
9. ISSUED BY HPOD US Environmental Protection Agency William Jefferson Clinton Building 1200 Pennsylvania Avenue, N. W. Mail Code: 3803R Washington DC 20460				10. THIS ACQUISITION IS <input checked="" type="checkbox"/> UNRESTRICTED OR <input type="checkbox"/> SET ASIDE: % FOR: <div style="display: flex; justify-content: space-between;"> <div> <input type="checkbox"/> SMALL BUSINESS  <input type="checkbox"/> HUBZONE SMALL BUSINESS  <input type="checkbox"/> SERVICE-DISABLED VETERAN-OWNED SMALL BUSINESS </div> <div> <input type="checkbox"/> WOMEN-OWNED SMALL BUSINESS (WOSB) ELIGIBLE UNDER THE WOMEN-OWNED SMALL BUSINESS PROGRAM  <input type="checkbox"/> EDWOSB  <input type="checkbox"/> 8(A) </div> <div> NAICS: 541620   SIZE STANDARD: \$15.0 </div> </div>					
11. DELIVERY FOR FOB DESTINATION UNLESS BLOCK IS MARKED <input checked="" type="checkbox"/> SEE SCHEDULE		12. DISCOUNT TERMS		13a. THIS CONTRACT IS A RATED ORDER UNDER DPAS (15 CFR 700) <input type="checkbox"/>		13b. RATING			
15. DELIVER TO OAR/OAQPS/AQAD US Environmental Protection Agency Mail Code: C304-02 109 TW Alexander Drive Durham NC 27711				16. ADMINISTERED BY HPOD US Environmental Protection Agency William Jefferson Clinton Building 1200 Pennsylvania Avenue, N. W. Mail Code: 3803R Washington DC 20460					
17a. CONTRACTOR/OFFEROR CODE 038086125		FACILITY CODE		18a. PAYMENT WILL BE MADE BY RTP FMC			CODE		
WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS, INC. Attn: JOSEPH FARRELL 751 Arbor Way Ste 180 Blue Bell PA 194221972  (b)(4) TELEPHONE NO.				RTP Finance Center US Environmental Protection Agency RTP-Finance Center (AA216-01) 109 TW Alexander Drive www2.epa.gov/financial/contracts Durham NC 27711					
<input type="checkbox"/> 17b. CHECK IF REMITTANCE IS DIFFERENT AND PUT SUCH ADDRESS IN OFFER				<input type="checkbox"/> 18b. SUBMIT INVOICES TO ADDRESS SHOWN IN BLOCK 18a UNLESS BLOCK BELOW IS CHECKED <input type="checkbox"/> SEE ADDENDUM					
19. ITEM NO.	20. SCHEDULE OF SUPPLIES/SERVICES			21. QUANTITY	22. UNIT	23. UNIT PRICE	24. AMOUNT		
	DUNS Number: 038086125 Title: Characterization of reduced Nitrogen at IMPROVE and CSN Monitoring Sites: Analysis of nylon filters for Anions. (2012)  This task order is issued in accordance with Task Order Ordering Procedures and hereby incorporates the base contract terms and conditions by reference. The effective date for performance to commence is August 14, 2018.  <i>(Use Reverse and/or Attach Additional Sheets as Necessary)</i>								
25. ACCOUNTING AND APPROPRIATION DATA See Schedule						26. TOTAL AWARD AMOUNT (For Govt. Use Only) \$19,270.00			
<input type="checkbox"/> 27a. SOLICITATION INCORPORATES BY REFERENCE FAR 52.212-1, 52.212-4, FAR 52.212-3 AND 52.212-5 ARE ATTACHED. ADDENDA <input type="checkbox"/> ARE <input type="checkbox"/> ARE NOT ATTACHED. <input checked="" type="checkbox"/> 27b. CONTRACT/PURCHASE ORDER INCORPORATES BY REFERENCE FAR 52.212-4. FAR 52.212-5 IS ATTACHED. ADDENDA <input type="checkbox"/> ARE <input checked="" type="checkbox"/> ARE NOT ATTACHED.									
<input type="checkbox"/> 28. CONTRACTOR IS REQUIRED TO SIGN THIS DOCUMENT AND RETURN COPIES TO ISSUING OFFICE. CONTRACTOR AGREES TO FURNISH AND DELIVER ALL ITEMS SET FORTH OR OTHERWISE IDENTIFIED ABOVE AND ON ANY ADDITIONAL SHEETS SUBJECT TO THE TERMS AND CONDITIONS SPECIFIED.					<input type="checkbox"/> 29. AWARD OF CONTRACT: _____ OFFER DATED _____. YOUR OFFER ON SOLICITATION (BLOCK 5), INCLUDING ANY ADDITIONS OR CHANGES WHICH ARE SET FORTH HEREIN, IS ACCEPTED AS TO ITEMS: _____				
30a. SIGNATURE OF OFFEROR/CONTRACTOR				31a. UNITED STATES OF AMERICA (SIGNATURE OF CONTRACTING OFFICER)  <div style="text-align: right;">ELECTRONIC SIGNATURE</div>					
30b. NAME AND TITLE OF SIGNER (Type or print)		30c. DATE SIGNED		31b. NAME OF CONTRACTING OFFICER (Type or print) Michael C. Fox			31c. DATE SIGNED 08/14/2018		

19. ITEM NO.	20. SCHEDULE OF SUPPLIES/SERVICES	21. QUANTITY	22. UNIT	23. UNIT PRICE	24. AMOUNT
0001	<p>The Contractor shall perform in accordance with the Attachment A Statement of Work (4 pages) and the accepted technical proposal and cost estimate dated August 9, 2018 (9 pages) in the amount of \$19,270.00.</p> <p>This is a Time-and-Materials (T&amp;M) task order with a total ceiling price of \$19,270.00 which the Contractor is not authorized to exceed. The Contractor exceeds at its own risk.</p> <p>The total obligated/funded ceiling amount for this order is currently \$19,270.00. This order is fully-funded as detailed in Attachment B Summary of Amounts and Ceilings and Attachment B is hereby incorporated (1 page).</p> <p>Contracting Officer Representative (COR) Joan Rice, (919) 541-3372, Rice.Joan@epa.gov</p> <p>Alternate COR: Laurie Trinca, (919) 541-2262, Trinca.Laurie@epa.gov</p> <p>The services of this order are for severable. TOCOR: Melissa Puchalski Period of Performance: 08/14/2018 to 07/08/2019</p> <p>Characterization of reduced Nitrogen at IMPROVE Continued ...</p>				

32a. QUANTITY IN COLUMN 21 HAS BEEN

☐ RECEIVED    ☐ INSPECTED    ☐ ACCEPTED, AND CONFORMS TO THE CONTRACT, EXCEPT AS NOTED: \_\_\_\_\_

32b. SIGNATURE OF AUTHORIZED GOVERNMENT REPRESENTATIVE		32c. DATE	32d. PRINTED NAME AND TITLE OF AUTHORIZED GOVERNMENT REPRESENTATIVE	
32e. MAILING ADDRESS OF AUTHORIZED GOVERNMENT REPRESENTATIVE			32f. TELEPHONE NUMBER OF AUTHORIZED GOVERNMENT REPRESENTATIVE	
			32g. E-MAIL OF AUTHORIZED GOVERNMENT REPRESENTATIVE	
33. SHIP NUMBER	34. VOUCHER NUMBER	35. AMOUNT VERIFIED CORRECT FOR	36. PAYMENT  <input type="checkbox"/> COMPLETE <input type="checkbox"/> PARTIAL <input type="checkbox"/> FINAL	37. CHECK NUMBER
<input type="checkbox"/> PARTIAL <input type="checkbox"/> FINAL				
38. S/R ACCOUNT NUMBER	39. S/R VOUCHER NUMBER	40. PAID BY		
41a. I CERTIFY THIS ACCOUNT IS CORRECT AND PROPER FOR PAYMENT		42a. RECEIVED BY ( <i>Print</i> )		
41b. SIGNATURE AND TITLE OF CERTIFYING OFFICER		42b. RECEIVED AT ( <i>Location</i> )		
		42c. DATE REC'D (YY/MM/DD)		42d. TOTAL CONTAINERS

NAME OF OFFEROR OR CONTRACTOR  
WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS, INC.

ITEM NO. (A)	SUPPLIES/SERVICES (B)	QUANTITY (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)
	and CSN Monitoring Sites: Analysis of nylon filters for Anions.  Accounting Info: 18-E1-53GS-000A04XPM-4183-1853PM8092-001 BFY: 18 Fund: E1 Budget Org: 53GS Program (PRC): 000A04XPM Budget (BOC): 4183 DCN - Line ID: 1853PM8092-001 Funding Flag: Partial Funded: \$19,270.00				

**ATTACHMENT A**  
**Statement of Work**

**Title:** Characterization of reduced nitrogen at IMPROVE and CSN monitoring sites: Analysis of nylon filters for Anions.  
**Contractor:** Wood Environment & Infrastructure Solutions Inc.  
**Contract #:** EP-W-16-015  
**Project #:** 2012  
**Period of Performance:** August 14, 2018 through July 8, 2019

**EPA Key Personnel**

**Task Order Project Officer (TOPO)/Contract Level Project Officer (PO):**

Joann Rice  
Air Quality Assessment Division (OAR/OAQPS/AQAD)  
Mail Drop C304-06  
Research Triangle Park, NC 27711  
Phone: (919) 541-3372  
Email: rice.joann@epa.gov

**Alternate TOPO:**

Melissa Puchalski  
Clean Air Markets Division (OAP/OAR/CAMD)  
1200 Pennsylvania Ave., NW  
Mail Code 6204M  
Washington, DC 20460  
*phone:* (202) 343-9882  
*email:* puchalski.melissa@epa.gov

**Contracting Officer (CO):**

Michael Fox  
Contracting Officer  
Administrative Contract Service Center  
1200 Pennsylvania Ave N.W.  
Mail Code 3803R  
Washington DC 20460  
*phone:* (202) 564-2550  
*email:* [fox.michael@epa.gov](mailto:fox.michael@epa.gov)



# STATEMENT OF WORK

## I. INTRODUCTION

The Clean Air Status and Trends Network (CASTNET) is a long-term environmental monitoring network that measures changes in ambient air quality and assesses atmospheric deposition over broad geographic regions of the U.S. (<https://www.epa.gov/castnet>). Operating since 1987, CASTNET has evolved into a robust regional monitoring program which currently consists of approximately 95 monitoring stations nationwide. The Environmental Protection Agency (EPA) coordinates the operation of the network in cooperation with numerous federal, tribal, state and local partners.

The primary monitoring objectives of CASTNET are to:

- Provide high quality data on atmospheric deposition, rural ground level ozone and other forms of atmospheric pollution;
- Support the primary and secondary ozone National Ambient Air Quality Standards (NAAQS) and provide data on NAAQS compliance in rural areas;
- Monitor the status and trends in regional air quality and atmospheric deposition;
- Assess and report on geographic patterns and long-term, temporal trends in ambient air pollution and atmospheric deposition;
- Improve our understanding of Particulate Matter (PM) and ozone formation;
- Validate and improve atmospheric models;
- Provide data for health-based research and epidemiology studies;
- Assess the effectiveness of EPA's emission reduction programs; and
- Support science and ecosystem studies.

CASTNET sites measure weekly average concentrations of sulfate ( $\text{SO}_4^{2-}$ ), nitrate ( $\text{NO}_3^-$ ), ammonium ( $\text{NH}_4^+$ ), sulfur dioxide ( $\text{SO}_2$ ), nitric acid ( $\text{HNO}_3$ ), chloride ( $\text{Cl}^-$ ) and the base cations ( $\text{Na}^+$ ,  $\text{K}^+$ ,  $\text{Mg}^{2+}$  and  $\text{Ca}^{2+}$ ) using a 3-stage filter pack. In addition, each site may make ancillary measurements, including hourly ozone ( $\text{O}_3$ ), hourly meteorology, ammonia ( $\text{NH}_3$ ) gas using passive devices, and trace-level gases. Trace-level gas monitors include reactive oxidized nitrogen ( $\text{NO}_y$ ), nitric oxide ( $\text{NO}$ ), sulfur dioxide ( $\text{SO}_2$ ) and carbon monoxide ( $\text{CO}$ ). CASTNET  $\text{O}_3$ , meteorological, and trace gas measurements follow the requirements in the Code of Federal Regulations (CFR) and EPA's Quality Assurance Handbook.

## II. Background

The Interagency Monitoring of Protected Visual Environments (IMPROVE) and Chemical Speciation (CSN) networks have provided two decades of routine particulate matter speciation data that support regional haze and PM NAAQS programs. The Clean Air Status and Trends Network (CASTNET) and National Atmospheric Deposition Program (NADP) have provide routine measurements of particulate, gaseous and wet deposition to support acid deposition programs. Over this period the chemical composition of the ambient atmosphere has changed markedly from one dominated by nitrate, sulfate and carbonaceous aerosols, and their associated precursor gases ( $\text{NO}_x$ ,  $\text{SO}_x$ , VOCs, SVOCs), to an atmospheric mixture that includes a significant amount of reduced inorganic nitrogen – particulate ammonium ( $\text{NH}_4^+$ ) and its precursor gas, ammonia ( $\text{NH}_3$ ). The magnitude of this change is reflected by a nationwide shift in the atmospheric nitrogen budget from one dominated by inorganic oxidized compounds, to one where reduced inorganic nitrogen species ( $\text{NH}_x = \text{NH}_3 + \text{NH}_4^+$ ) now have similar or greater concentrations. Total atmospheric nitrogen compounds are still primarily in inorganic forms, but have significant contributions from organically bound nitrogen (both reduced and oxidized forms). Looking forward, the shift to larger relative contributions of atmospheric reduced inorganic nitrogen is

projected to continue as existing rules and technologies continue to decrease NO<sub>x</sub> emissions from the transportation and energy generation sectors with an expected modest increase in NH<sub>3</sub> emissions.

### III. PURPOSE

This Task Order (TO) is a follow-on to TO 1012 for the analysis of extracts from nylon filters collected during the Duke Forest and Gainesville NH<sub>x</sub> study. The primary purpose of TO 1012 was to characterize reduced nitrogen (NH<sub>x</sub> = NH<sub>3</sub> + NH<sub>4</sub><sup>+</sup>) using existing network methodologies as a cost-effective, efficient way to characterize a significant contributor to PM formation, visibility degradation, and total nitrogen deposition. The objective of Task Order 1012 was to demonstrate if acid-impregnated filters within the IMPROVE module and the CSN Super Speciation Air Sampling System (SASS) can provide accurate NH<sub>x</sub> concentrations in humid climates with low to moderate ambient NH<sub>3</sub> concentrations (Duke Forest, North Carolina and Gainesville, Florida) for approximately six months.

### IV. CONTRACT LEVEL STATEMENT OF WORK REFERENCE

The tasks to be performed under this task order are consistent with the activities authorized in CLIN 22 of the contract's Statement of Work.

### V. TECHNICAL DIRECTION

#### 1. Prepare a Technical Proposal & Cost Estimate

The Contractor shall prepare a Task Order Proposal in accordance with the terms and conditions of contract clauses B.2 entitled Fixed Rates for Services – Indefinite delivery/Indefinite quantity contract.

#### 2. Sample Analysis for Anions

Three nylon filters from the primary annular denuder system (ADS), duplicate ADS, and CSN SASS system were extracted under TO 1012 and kept in refrigerated storage. The extracts were collected on the 57 sample dates identified in the table below. The contractor shall analyze the extracts for sulfate, nitrate, chloride, and if possible an estimate of oxalate. The extracts shall be analyzed using the Standard Operating Procedures for Determination of Anions and/or Cations Extracted from Nylon Filters by Ion Chromatography (IC), Rev. 5. Mar. 3, 2016 (<http://vista.cira.colostate.edu/Improve/wp-content/uploads/2016/07/IMPROVE-Anion-Cation-Analysis-by-Ion-Chromatography-SOP-2016.pdf>).

Laboratory analysis results shall be converted to concentrations using the total sample volume and recorded in the database.

Duke Forest Sample Dates (38)	Gainesville Sample Dates (19)
5/25/17	5/31/17
5/28/17	7/27/17
5/31/17	8/2/17
6/3/17	8/5/17
6/6/17	8/17/17
6/15/17	8/20/17
6/18/17	8/23/17
6/24/17	8/26/17
6/27/17	8/29/17
7/6/17	9/19/17

7/9/17	9/28/17
7/12/17	10/1/17
7/15/17	10/4/17
7/18/17	10/7/17
7/27/17	10/10/17
7/30/17	10/19/17
8/2/17	10/22/17
8/5/17	10/25/17
8/8/17	10/31/17
8/20/17	
8/23/17	
8/29/17	
9/7/17	
9/10/17	
9/13/17	
9/16/17	
9/19/17	
9/28/17	
10/1/17	
10/4/17	
10/7/17	
10/10/17	
10/19/17	
10/22/17	
10/25/17	
10/28/17	
10/31/17	
11/3/17	

### 3. Data Analysis and Summary Report

The contractor shall finalize the data set including the data collected under TO 1012. This shall include using blank information, flow data and laboratory QC results to provide a final validated database. This shall also include the anion data analyzed under subtask 2. Metadata shall be included in the data submittal, including descriptions of flags and equations used to calculate ambient concentrations.

The contractor shall deliver a final summary report describing the purpose of the study, the sample procedures, a summary of the ambient data, and field and laboratory QA results. The report shall include plots and charts that describe any biases in sampling methods. Concurrently, additional testing of the URG ADS samplers are being conducted by US EPA/ORD in RTP, NC. Preliminary results from that study may be summarized in this report if the data help explain the breakthrough on ADS found during the field sampling campaign under TO 1012.

With technical direction, the contractor may be asked to assist with providing conclusions to the report. This shall not be included in the labor hours until technical direction is provided.

## VI. DELIVERABLES AND SCHEDULE

### 1. Proposal

The contractor shall deliver a Task Order Proposal in accordance with clause B.7 Task Order Ordering Procedures of the contract. The proposal shall be submitted 10 days after receipt of the SOW.

## **2. Monthly Progress Report**

The contractor shall prepare and submit a monthly progress report by the 15<sup>th</sup> of each month summarizing the progress made, issues encountered or expected, work planned for the next reporting period and costs. These reports shall comply with contract clauses F.1 Monthly Progress Report. Reports and F-5 Reports of Work shall be delivered electronically.

## **3. Database**

The contractor shall deliver a database submittal(s) with valid anion laboratory data and all QA/QC data reported. Anion results from the previous 30-day period of analysis runs shall be submitted no later than 30 days after the last sample of the month was analyzed. The final study database including metadata shall be delivered in conjunction with the summary report on November 1, 2018.

## **4. Summary Report**

The contractor shall deliver a final summary report with charts and tables describing the final results of the NH<sub>x</sub> measurements. Statistical analyses shall be performed to describe biases between the sampling methods. A draft report shall be delivered by November 1, 2018. A final summary report shall be delivered 30-days after final comments are received by the EPA technical advisors.

### **Distribution of Deliverables:**

Addressee	Copies
EPA Contracting Officer (Mike Fox)	1
EPA Project Officer (Joann Rice)	1
EPA Alternate (Melissa Puchalski)	1
EPA Technical Advisor (John Walker)	1
NPS Technical Advisor (Bret Schichtel)	1

**ATTACHMENT B**  
**SUMMARY OF TASK ORDER OBLIGATION/CEILING AMOUNTS**

Total Funding/Obligation Amounts			
Period	Previous Amount	This Action	Amount
Base Period	-	\$19,270.00	\$19,270.00
<b>Total</b>	-	<b>\$19,270.00</b>	<b>\$19,270.00</b>

Total Task Order Ceiling			
Period	Previous Amount	This Action	Amount
Base Period	-	\$19,270.00	\$19,270.00
<b>Total</b>	-	<b>\$19,270.00</b>	<b>\$19,270.00</b>

**Note:** This task order is incrementally funded in accordance with contract clause B.5 Limitation of Government's Obligation (EPA-B-32-103).

<b>AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT</b>		1. CONTRACT ID CODE		PAGE OF PAGES 1 2	
2. AMENDMENT/MODIFICATION NO. P00001		3. EFFECTIVE DATE See Block 16C		4. REQUISITION/PURCHASE REQ. NO.	
6. ISSUED BY HPOD US Environmental Protection Agency William Jefferson Clinton Building 1200 Pennsylvania Avenue, N. W. Mail Code: 3803R Washington DC 20460		7. ADMINISTERED BY (If other than Item 6) CODE		5. PROJECT NO. (If applicable) 2012	
8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP Code) WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS, INC. Attn: JOSEPH FARRELL 751 Arbor Way Ste 180 Blue Bell PA 194221972		(x)		9A. AMENDMENT OF SOLICITATION NO.	
CODE 038086125		FACILITY CODE		9B. DATED (SEE ITEM 11)	
		x		10A. MODIFICATION OF CONTRACT/ORDER NO. EP-W-16-015 68HE0H18F1544	
				10B. DATED (SEE ITEM 13) 08/14/2018	

**11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS**

☐ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers ☐ is extended. ☐ is not extended.  
Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods: (a) By completing Items 8 and 15, and returning \_\_\_\_\_ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or electronic communication which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGEMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by letter or electronic communication, provided each letter or electronic communication makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)

See Schedule

**13. THIS ITEM ONLY APPLIES TO MODIFICATION OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.**

CHECK ONE	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.
	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation data, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).
	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
X	D. OTHER (Specify type of modification and authority) Mutual Agreement of the Parties

E. IMPORTANT: Contractor ☐ is not ☒ is required to sign this document and return 1 copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)

DUNS Number: 038086125

The purpose of this modification is to extend the period of performance of this order by 30 days, at no additional cost to the government. The period of performance end date is being changed from July 8, 2019 to August 8, 2019.

TOCOR: Melissa Puchalski

LIST OF CHANGES:

Reason for Modification: Supplemental Agreement for work within scope

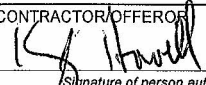
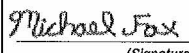
Period Of Performance End Date changed from 08-JUL-19 to 08-AUG-19

CHANGES FOR LINE ITEM NUMBER: 1

End Date changed from 08-JUL-19 to 08-AUG-19

Continued ...

Except as provided herein, all terms and conditions of the document referenced in Item 9 A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print) <b>Kemp Howell - Project Manager</b>		16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print) Michael C. Fox	
15B. CONTRACTOR/OFFEROR  (Signature of person authorized to sign)		16B. UNITED STATES OF AMERICA  (Signature of Contracting Officer)	
15C. DATE SIGNED 6/24/19		16C. DATE SIGNED 06/21/2019	

Previous edition unusable

STANDARD FORM 30 (REV. 11/2016)  
Prescribed by GSA FAR (48 CFR) 53.243

CONTINUATION SHEET	REFERENCE NO. OF DOCUMENT BEING CONTINUED EP-W-16-015/68HE0H18F1544/P00001	PAGE	OF
		2	2

NAME OF OFFEROR OR CONTRACTOR  
WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS, INC.

ITEM NO. (A)	SUPPLIES/SERVICES (B)	QUANTITY (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)
	Payment: RTP Finance Center US Environmental Protection Agency RTP-Finance Center (AA216-01) 109 TW Alexander Drive www2.epa.gov/financial/contracts Durham NC 27711 Period of Performance: 08/14/2018 to 08/08/2019				

<b>AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT</b>		1. CONTRACT ID CODE		PAGE OF PAGES 1 2	
2. AMENDMENT/MODIFICATION NO. P00002		3. EFFECTIVE DATE See Block 16C		4. REQUISITION/PURCHASE REQ. NO.	
5. PROJECT NO. (If applicable)		6. ISSUED BY HQAD		7. ADMINISTERED BY (If other than Item 6)	
8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP Code) WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS, INC. Attn: JOSEPH FARRELL 751 Arbor Way Ste 180 Blue Bell PA 194221972		(X)		9A. AMENDMENT OF SOLICITATION NO.	
CODE 038086125		FACILITY CODE		9B. DATED (SEE ITEM 11)	
		X		10A. MODIFICATION OF CONTRACT/ORDER NO. EP-W-16-015 68HE0H18F1544	
				10B. DATED (SEE ITEM 13) 08/14/2018	

**11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS**

☐ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers ☐ is extended. ☐ is not extended.  
Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods: (a) By completing Items 8 and 15, and returning \_\_\_\_\_ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or electronic communication which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGEMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by letter or electronic communication, provided each letter or electronic communication makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)  
See Schedule Net Decrease: -\$8,959.06

**13. THIS ITEM ONLY APPLIES TO MODIFICATION OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.**

CHECK ONE	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.
	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation data, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).
	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
X	D. OTHER (Specify type of modification and authority) EPA-B-32-103 - LIMITATION OF GOVERNMENT'S OBLIGATION

**E. IMPORTANT:** Contractor ☒ is not ☐ is required to sign this document and return \_\_\_\_\_ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)

DUNS Number: 038086125

The purpose of this modification is to de-obligate funding in the amount of \$8,959.06 from this task order.

TOCOR: Melissa Puchalski

LIST OF CHANGES:

Reason for Modification: Funding Only Action

Obligated Amount for this Modification: -\$8,959.06

New Total Obligated Amount for this Award: \$10,310.94

Incremental Funded Amount changed: from \$19,270.00 to \$10,310.94

Continued ...

Except as provided herein, all terms and conditions of the document referenced in Item 9 A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)		16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print) Michael C. Fox	
15B. CONTRACTOR/OFFEROR  (Signature of person authorized to sign)	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA  (Signature of Contracting Officer)	16C. DATE SIGNED 10/16/2019



<b>CONTINUATION SHEET</b>	REFERENCE NO. OF DOCUMENT BEING CONTINUED	PAGE	OF
	EP-W-16-015/68HE0H18F1544/P00002	2	2

NAME OF OFFEROR OR CONTRACTOR

WOOD ENVIRONMENT &amp; INFRASTRUCTURE SOLUTIONS, INC.

ITEM NO. (A)	SUPPLIES/SERVICES (B)	QUANTITY (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)
	<p>CHANGES FOR LINE ITEM NUMBER: 1</p> <p>Obligated Amount for this Modification: -\$8,959.06</p> <p>Incremental Funded Amount changed from \$19,270.00 to \$10,310.94</p> <p>CHANGES FOR ACCOUNTING CODE:</p> <p>18-E1-53GS-000A04XPM-4183-1853PM8092-001</p> <p>Amount changed from \$19,270.00 to \$10,310.94</p> <p>Payment:</p> <p>RTP Finance Center</p> <p>US Environmental Protection Agency</p> <p>RTP-Finance Center (AA216-01)</p> <p>109 TW Alexander Drive</p> <p><a href="http://www2.epa.gov/financial/contracts">www2.epa.gov/financial/contracts</a></p> <p>Durham NC 27711</p> <p>Period of Performance: 08/14/2018 to 08/08/2019</p>				

<b>SOLICITATION/CONTRACT/ORDER FOR COMMERCIAL ITEMS</b> <i>OFFEROR TO COMPLETE BLOCKS 12, 17, 23, 24, &amp; 30</i>				1. REQUISITION NUMBER PR-OAR-18-01420		PAGE OF 1 3			
2. CONTRACT NO. EP-W-16-015			3. AWARD/ EFFECTIVE DATE 10/04/2018		4. ORDER NUMBER 68HERH19F0001		5. SOLICITATION NUMBER		
6. SOLICITATION ISSUE DATE			7. <b>FOR SOLICITATION INFORMATION CALL:</b> a. NAME Michael Fox					b. TELEPHONE NUMBER (No collect calls) 202-564-2550	
8. OFFER DUE DATE/LOCAL TIME ET			9. ISSUED BY CODE HPOD HPOD US Environmental Protection Agency William Jefferson Clinton Building 1200 Pennsylvania Avenue, N. W. Mail Code: 3803R Washington DC 20460						
10. THIS ACQUISITION IS <input checked="" type="checkbox"/> UNRESTRICTED OR <input type="checkbox"/> SET ASIDE: % FOR:  <input type="checkbox"/> SMALL BUSINESS <input type="checkbox"/> HUBZONE SMALL BUSINESS <input type="checkbox"/> SERVICE-DISABLED VETERAN-OWNED SMALL BUSINESS <input type="checkbox"/> WOMEN-OWNED SMALL BUSINESS (WOSB) ELIGIBLE UNDER THE WOMEN-OWNED SMALL BUSINESS PROGRAM <input type="checkbox"/> EDWOSB <input type="checkbox"/> 8(A) NAICS: 541620 SIZE STANDARD: \$15.0			11. DELIVERY FOR FOB DESTINATION UNLESS BLOCK IS MARKED <input checked="" type="checkbox"/> SEE SCHEDULE						
12. DISCOUNT TERMS			13a. THIS CONTRACT IS A RATED ORDER UNDER DPAS (15 CFR 700)			13b. RATING			
14. METHOD OF SOLICITATION <input type="checkbox"/> RFQ <input type="checkbox"/> IFB <input type="checkbox"/> RFP			15. DELIVER TO CODE OAR/OAQPS/AQAD OAR/OAQPS/AQAD US Environmental Protection Agency Mail Code: C304-02 109 TW Alexander Drive Durham NC 27711						
16. ADMINISTERED BY CODE HPOD HPOD US Environmental Protection Agency William Jefferson Clinton Building 1200 Pennsylvania Avenue, N. W. Mail Code: 3803R Washington DC 20460			17a. CONTRACTOR/ OFFEROR CODE 038086125 FACILITY CODE WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS, INC. Attn: JOSEPH FARRELL 751 Arbor Way Ste 180 Blue Bell PA 194221972  (b)(4) TELEPHONE NO.						
18a. PAYMENT WILL BE MADE BY CODE RTP FMC RTP Finance Center US Environmental Protection Agency RTP-Finance Center (AA216-01) 109 TW Alexander Drive www2.epa.gov/financial/contracts Durham NC 27711			18b. SUBMIT INVOICES TO ADDRESS SHOWN IN BLOCK 18a UNLESS BLOCK BELOW IS CHECKED <input type="checkbox"/> SEE ADDENDUM						
19. ITEM NO.		20. SCHEDULE OF SUPPLIES/SERVICES				21. QUANTITY		22. UNIT	
23. UNIT PRICE		24. AMOUNT							
DUNS Number: 038086125 Title: Support for Ncore Monitoring Sites (2015)  This task order is issued in accordance with Task Order Ordering Procedures and hereby incorporates the base contract terms and conditions by reference. The effective date for performance to commence is October 4, 2018.  The Contractor shall perform in accordance with the Attachment A Statement of Work (4 pages) and (Use Reverse and/or Attach Additional Sheets as Necessary)									
25. ACCOUNTING AND APPROPRIATION DATA See Schedule						26. TOTAL AWARD AMOUNT (For Govt. Use Only) \$32,708.00			
27a. SOLICITATION INCORPORATES BY REFERENCE FAR 52.212-1, 52.212-4, FAR 52.212-3 AND 52.212-5 ARE ATTACHED. ADDENDA <input type="checkbox"/> ARE <input type="checkbox"/> ARE NOT ATTACHED.						27b. CONTRACT/PURCHASE ORDER INCORPORATES BY REFERENCE FAR 52.212-4, FAR 52.212-5 IS ATTACHED. ADDENDA <input type="checkbox"/> ARE <input type="checkbox"/> ARE NOT ATTACHED.			
28. CONTRACTOR IS REQUIRED TO SIGN THIS DOCUMENT AND RETURN COPIES TO ISSUING OFFICE. CONTRACTOR AGREES TO FURNISH AND DELIVER ALL ITEMS SET FORTH OR OTHERWISE IDENTIFIED ABOVE AND ON ANY ADDITIONAL SHEETS SUBJECT TO THE TERMS AND CONDITIONS SPECIFIED.						29. AWARD OF CONTRACT: _____ OFFER DATED _____. YOUR OFFER ON SOLICITATION (BLOCK 5), INCLUDING ANY ADDITIONS OR CHANGES WHICH ARE SET FORTH HEREIN, IS ACCEPTED AS TO ITEMS:			
30a. SIGNATURE OF OFFEROR/CONTRACTOR						31a. UNITED STATES OF AMERICA (SIGNATURE OF CONTRACTING OFFICER)  Michael C. Fox ELECTRONIC SIGNATURE			
30b. NAME AND TITLE OF SIGNER (Type or print)			30c. DATE SIGNED		31b. NAME OF CONTRACTING OFFICER (Type or print) Michael C. Fox			31c. DATE SIGNED 10/03/2018	

19. ITEM NO.	20. SCHEDULE OF SUPPLIES/SERVICES	21. QUANTITY	22. UNIT	23. UNIT PRICE	24. AMOUNT
0001	<p>the accepted technical proposal and cost estimate dated September 28, 2018 (8 pages) in the amount of \$32,708.00.</p> <p>This is a Time-and-Materials (T&amp;M) task order with a total ceiling price of \$32,708.00 which the Contractor is not authorized to exceed. The Contractor exceeds at its own risk.</p> <p>The total obligated/funded ceiling amount for this order is currently \$31,095.00. This order is fully-funded as detailed in Attachment B Summary of Amounts and Ceilings and Attachment B is hereby incorporated (1 page).</p> <p>Contracting Officer Representative (COR) Melissa Puchalski, (202)343-9882, Puchalski.Melissa@epa.gov</p> <p>Alternate COR: Laurie Trinca, (919)541-2262, Trinca.Laurie@epa.gov</p> <p>The services of this order are for severable. TOCOR: Melissa Puchalski Period of Performance: 10/04/2018 to 07/08/2019</p> <p>Support for NCore Monitoring Sites</p> <p>Continued ...</p>				

32a. QUANTITY IN COLUMN 21 HAS BEEN

☐ RECEIVED    ☐ INSPECTED    ☐ ACCEPTED, AND CONFORMS TO THE CONTRACT, EXCEPT AS NOTED: \_\_\_\_\_

32b. SIGNATURE OF AUTHORIZED GOVERNMENT REPRESENTATIVE		32c. DATE	32d. PRINTED NAME AND TITLE OF AUTHORIZED GOVERNMENT REPRESENTATIVE	
32e. MAILING ADDRESS OF AUTHORIZED GOVERNMENT REPRESENTATIVE			32f. TELEPHONE NUMBER OF AUTHORIZED GOVERNMENT REPRESENTATIVE	
			32g. E-MAIL OF AUTHORIZED GOVERNMENT REPRESENTATIVE	
33. SHIP NUMBER	34. VOUCHER NUMBER	35. AMOUNT VERIFIED CORRECT FOR	36. PAYMENT  <input type="checkbox"/> COMPLETE <input type="checkbox"/> PARTIAL <input type="checkbox"/> FINAL	37. CHECK NUMBER
<input type="checkbox"/> PARTIAL <input type="checkbox"/> FINAL				
38. S/R ACCOUNT NUMBER	39. S/R VOUCHER NUMBER	40. PAID BY		
41a. I CERTIFY THIS ACCOUNT IS CORRECT AND PROPER FOR PAYMENT		42a. RECEIVED BY ( <i>Print</i> )		
41b. SIGNATURE AND TITLE OF CERTIFYING OFFICER		41c. DATE	42b. RECEIVED AT ( <i>Location</i> )	
			42c. DATE REC'D (YY/MM/DD)	42d. TOTAL CONTAINERS

NAME OF OFFEROR OR CONTRACTOR  
WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS, INC.

ITEM NO. (A)	SUPPLIES/SERVICES (B)	QUANTITY (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)
	Accounting Info: 18-E1-53GS-000A04XPM-4183-1853PM8115-001 BFY: 18 Fund: E1 Budget Org: 53GS Program (PRC): 000A04XPM Budget (BOC): 4183 DCN - Line ID: 1853PM8115-001 Funding Flag: Complete Funded: \$31,095.00				

<b>Title:</b>	Support for NCore Monitoring Sites
<b>Contractor:</b>	Wood Environment & Infrastructure Solutions Inc.
<b>Contract #:</b>	EP-W-16-015
<b>Task Order #:</b>	2015
<b>Period of Performance:</b>	10/04/2018 to 7/08/2019

### **EPA Key Personnel**

#### **Task Order Project Officer (TOPO)/Contract Level Project Officer (PO):**

Melissa Puchalski  
Clean Air Markets Division (CAMD)  
Mail Drop 6204M  
Washington DC 20460  
*phone:* (202) 343-9882  
*email:* Puchalski.Melissa@epa.gov

#### **Alternate TOPO:**

Laurie Trinca  
Air Quality Assessment Division (OAR/OAQPS/AQAD)  
Mail Drop C304-06  
Research Triangle Park, NC 27711  
*phone:* (919) 541-2262  
*email:* trinca.laurie@epa.gov

#### **Contracting Officer (CO):**

Mike Fox  
Contracting Officer  
Administrative Contract Service Center  
1200 Pennsylvania Ave N.W.  
Mail Code 3803R  
Washington DC 20460  
*phone:* (202) 564-2550  
*email:* fox.michael@epa.gov

## STATEMENT OF WORK

### I. INTRODUCTION

The Clean Air Status and Trends Network (CASTNET) is a long-term environmental monitoring network that measures changes in ambient air quality and assesses atmospheric deposition over broad geographic regions of the U.S. (<https://www.epa.gov/castnet>). Operating since 1987, CASTNET has evolved into a robust regional monitoring program which currently consists of approximately 95 monitoring stations nationwide. The Environmental Protection Agency (EPA) coordinates the operation of the network in cooperation with numerous federal, tribal, state and local partners.

The primary monitoring objectives of CASTNET are to:

- Provide high quality data on atmospheric deposition, rural ground-level ozone and other forms of atmospheric pollution;
- Support the primary and secondary ozone NAAQS and provide data on NAAQS compliance in rural areas;
- Monitor the status and trends in regional air quality and atmospheric deposition;
- Assess and report on geographic patterns and long-term, temporal trends in ambient air pollution and atmospheric deposition;
- Improve our understanding of PM and ozone formation;
- Validate and improve atmospheric models;
- Provide data for health-based research and epidemiology studies;
- Assess the effectiveness of EPA's emission reduction programs; and
- Support science and ecosystem studies.

CASTNET sites measure weekly average concentrations of sulfate ( $\text{SO}_4^{2-}$ ), nitrate ( $\text{NO}_3^-$ ), ammonium ( $\text{NH}_4^+$ ), sulfur dioxide ( $\text{SO}_2$ ), nitric acid ( $\text{HNO}_3$ ), chloride ( $\text{Cl}^-$ ) and the base cations ( $\text{Na}^+$ ,  $\text{K}^+$ ,  $\text{Mg}^{2+}$  and  $\text{Ca}^{2+}$ ) using a 3-stage filter pack. In addition, each site may make ancillary measurements, including hourly ozone ( $\text{O}_3$ ), hourly meteorology, ammonia ( $\text{NH}_3$ ) gas using passive devices, and trace-level gases. Trace-level gas monitors include reactive oxidized nitrogen ( $\text{NO}_y$ ), nitric oxide ( $\text{NO}$ ), sulfur dioxide ( $\text{SO}_2$ ) and carbon monoxide ( $\text{CO}$ ). CASTNET  $\text{O}_3$ , meteorological, and trace gas measurements follow the requirements in the Code of Federal Regulations (CFR) and EPA's Quality Assurance Handbook.

### II. PURPOSE

The primary purpose of this task order is to assist the Regional Air Pollution Control Agency (RAPCA) to install and operate a NO/NO<sub>y</sub> monitoring system at their NCore site (Site ID 39-135-1001) at the National Trail School located in Dayton, OH. RAPCA has run an Ecotech and most recently a Thermo NO/NO<sub>y</sub> system at their NCore site with significant operational issues. The Thermo system consistently loses signal when challenged with calibration gas necessitating an increase to the potentiometer. No specific issue with the system has been found by RAPCA or Thermo. Under this Task Order, Wood Environment and Infrastructure, Inc. (Wood) will obtain a Teledyne API NO/NO<sub>y</sub> system from OAQPS to install at the Dayton, OH NCore monitoring site and remotely review and troubleshoot any problems RAPCA has with the system. Wood will also provide an interim data summary report and a final brief assessment report describing any issues, changes in normal operating procedures and a summary of the data collected after approximately 1-year of operation.

### III. CONTRACT LEVEL STATEMENT OF WORK REFERENCE

The tasks to be performed under this task order are consistent with the activities authorized in CLIN 22 of the contract's Statement of Work.

#### **IV. TECHNICAL DIRECTION**

##### **1. Prepare a Technical Proposal & Cost Estimate**

The Contractor shall prepare a Task Order Proposal in accordance with the terms and conditions of contract clauses B.1 entitled Fixed Rates for Services – Indefinite delivery/Indefinite quantity contract.

##### **2. Retrofit and calibration Teledyne API NO/NO<sub>y</sub> system**

*The contractor shall receive the Teledyne API T200U NO/NO<sub>y</sub> system from OAQPS. Upon arrival, the contractor shall test the system to verify that it is working properly.*

*The contractor shall also receive the repair kit from Teledyne to modify umbilical, the converter box and the pump box. This should bring all known electrical issues up to code with this system. The contractor shall follow the technical note for instructions on how to install the parts included in the kit.*

*Prior to shipping the system to Dayton, OH, Wood shall verify that all parts and equipment are in working order.*

##### **3. Install and Calibrate NO/NO<sub>y</sub> system at Dayton, OH Monitoring Site**

*EPA will set up an initial call with RAPCA and the contractor to discuss the equipment that is already at the site (data logger, existing racks, etc.) and the timing for installation/any training. For the purposes of costing, Wood should assume that RAPCA has a zero-air system and NPN/NO<sub>2</sub> gas cylinders.*

*The contractor shall schedule a site visit for installation of the NO/NO<sub>y</sub> system. During the visit the contractor shall set up automated zero, span, and QC checks and remote access to review the data through the ESC Airvision data logger software. Dayton currently performs zero and span checks daily and QC checks weekly.*

*While on-site the contractor shall review any documentation, and recommend any updates reflecting changes in procedures or instrument operation*

##### **4. Data review and interim data report documentation**

*The contractor shall review data ambient, QC and housekeeping data remotely using CASTNET procedures outlined in the CASTNET QAPP v 9.1.*

*The contractor shall deliver a document to EPA with any findings and summarize data collected after 4-months of operation.*

##### **5. Audit/Calibration visit.**

*The contractor shall perform an on-site calibration and audit of the instruments and subsystems (zero air generator, pumps, etc.) following the procedures in the CASTNET QAPP v9.1 Appendix 11, 3-5 months after the installation.*

*The contractor shall include costing for one additional repair trip. This trip will only occur if it is determined that troubleshooting or calibration cannot be performed remotely.*

##### **6. Remote Troubleshooting**

*Wood shall provide RAPCA with remote troubleshooting if issues arise with the NO/NO<sub>y</sub> system. For costing purposes Wood shall estimate 20 hours of troubleshooting. Additional hours may be approved through technical direction if needed.*

## **7. Final Report**

*The contractor shall submit a concise final report with recommendations and findings. The report should summarize ambient NO/NO<sub>y</sub> data as well as QC checks and calibration results. The contractor shall include general comparisons with CASTNET-operated NO/NO<sub>y</sub> analyzers (i.e. differences in diurnal patterns, operation, failed QC checks, etc.).*

## **8. Project Closeout:**

*If the project is successful as measured by high completeness of the NO<sub>y</sub>/NO data and QC checks consistently being within acceptable tolerances, then the project will continue for the full duration (ending July 8<sup>th</sup> 2019) and RAPCA will take over the measurements at the end of the project. If the project is not going well either due to low completeness of the NO<sub>y</sub>/NO data and/or due to poor performance of QC checks, then EPA will direct Wood to uninstall the equipment and ship back to either EPA in RTP, NC, or Teledyne API in San Diego CA. A decision to end the project early and have Wood uninstall the equipment or leave in place and continue will be made by March 8<sup>th</sup>, 2019.*

# **V. DELIVERABLES AND SCHEDULE**

## **1. Proposal**

The contractor shall deliver a Task Order Proposal in accordance with clause B.7 Task Order Ordering Procedures of the contract. The proposal shall be submitted 10 days after receipt of the SOW.

## **2. Monthly Progress Report**

The contractor shall prepare and submit a monthly progress report by the 15<sup>th</sup> of each month summarizing the progress made, issues encountered or expected, work planned for the next reporting period and costs. These reports shall comply with contract clauses F.5 Reports of Work and F.1 Monthly Progress Report. Reports shall be delivered electronically.

## **3. Interim Data Report**

The contractor shall prepare and submit an interim data report by February 18<sup>th</sup> 2019. The report shall concisely summarize the ambient NO/NO<sub>y</sub> data and QC results.

## **4. Final Report**

The contractor shall prepare and submit a final report at the end of data collection summarizing any findings, recommendations, ambient data results and a comparison to data collected at NO/NO<sub>y</sub> CASTNET sites. A draft report shall be delivered by July 8<sup>th</sup> 2019.

## **Distribution of Deliverables:**

Addressee	Copies
EPA Contracting Officer (Mike Fox)	1
EPA Project Officer (Melissa Puchalski)	1
EPA Alternate (Laurie Trinca)	1
EPA Technical Advisor (Tim Hanley)	1



Contract#: EP-W-16-015  
Task Order#: 68HERH19F0001  
Project#: 2015

**ATTACHMENT B**  
**SUMMARY OF TASK ORDER OBLIGATION/CEILING AMOUNTS**

Total Funding/Obligation Amounts			
Period	Previous Amount	This Action	Amount
Base Period	-	\$31,095.00	\$31,095.00
<b>Total</b>	-	<b>\$31,095.00</b>	<b>\$31,095.00</b>

Total Task Order Ceiling			
Period	Previous Amount	This Action	Amount
Base Period	-	\$32,708.00	\$32,708.00
<b>Total</b>	-	<b>\$32,708.00</b>	<b>\$32,708.00</b>

**Note:** This task order is incrementally funded in accordance with contract clause B.5 Limitation of Government's Obligation (EPA-B-32-103).

<b>AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT</b>		1. CONTRACT ID CODE		PAGE OF PAGES 1 2	
2. AMENDMENT/MODIFICATION NO. P00001		3. EFFECTIVE DATE See Block 16C		4. REQUISITION/PURCHASE REQ. NO.	
5. PROJECT NO. (If applicable) 2015		6. ISSUED BY HP0D		7. ADMINISTERED BY (If other than Item 6)	
8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP Code)  WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS, INC. Attn: JOSEPH FARRELL 751 Arbor Way Ste 180 Blue Bell PA 194221972		(x)		9A. AMENDMENT OF SOLICITATION NO.	
CODE 038086125		FACILITY CODE		9B. DATED (SEE ITEM 11)	
		x		10A. MODIFICATION OF CONTRACT/ORDER NO. EP-W-16-015 68HERH19F0001	
				10B. DATED (SEE ITEM 13) 10/03/2018	

**11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS**

☐ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers ☐ is extended. ☐ is not extended.  
Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods: (a) By completing Items 8 and 15, and returning \_\_\_\_\_ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or electronic communication which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGEMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by letter or electronic communication, provided each letter or electronic communication makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

**12. ACCOUNTING AND APPROPRIATION DATA (If required)**

See Schedule

**13. THIS ITEM ONLY APPLIES TO MODIFICATION OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.**

CHECK ONE	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.
	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation data, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).
	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
X	D. OTHER (Specify type of modification and authority) Mutual Agreement of the Parties

**E. IMPORTANT:** Contractor ☐ is not ☒ is required to sign this document and return \_\_\_\_\_ copies to the issuing office.

**14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)**

DUNS Number: 038086125

The purpose of this modification is to extend the period of performance of this order by 30 days, at no additional cost to the government. The period of performance end date is being changed from July 8, 2019 to August 8, 2019.

TOCOR: Melissa Puchalski

**LIST OF CHANGES:**

Reason for Modification: Supplemental Agreement for work within scope

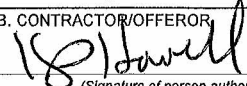

Period Of Performance End Date changed from 08-JUL-19 to 08-AUG-19

CHANGES FOR LINE ITEM NUMBER: 1

End Date changed from 08-JUL-19 to 08-AUG-19

Continued ...

Except as provided herein, all terms and conditions of the document referenced in Item 9 A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print) <b>Kemp Howell - Project Manager</b>		16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print) Michael C. Fox	
15B. CONTRACTOR/OFFEROR  (Signature of person authorized to sign)	15C. DATE SIGNED 6/24/18	16B. UNITED STATES OF AMERICA  (Signature of Contracting Officer)	16C. DATE SIGNED 06/21/2019

Previous edition unusable

CONTINUATION SHEET	REFERENCE NO. OF DOCUMENT BEING CONTINUED EP-W-16-015/68HERH19F0001/P00001	PAGE	OF
		2	2

NAME OF OFFEROR OR CONTRACTOR  
WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS, INC.

ITEM NO. (A)	SUPPLIES/SERVICES (B)	QUANTITY (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)
	Payment: RTP Finance Center US Environmental Protection Agency RTP-Finance Center (AA216-01) 109 TW Alexander Drive www2.epa.gov/financial/contracts Durham NC 27711 Period of Performance: 10/04/2018 to 08/08/2019				

<b>AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT</b>		1. CONTRACT ID CODE		PAGE OF PAGES 1 2	
2. AMENDMENT/MODIFICATION NO. P00002		3. EFFECTIVE DATE See Block 16C		4. REQUISITION/PURCHASE REQ. NO.	
5. PROJECT NO. (If applicable) 2015		6. ISSUED BY HQAD		7. ADMINISTERED BY (If other than Item 6) CODE	
8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP Code) WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS, INC. Attn: JOSEPH FARRELL 751 Arbor Way Ste 180 Blue Bell PA 194221972		(X)		9A. AMENDMENT OF SOLICITATION NO.	
CODE 038086125		FACILITY CODE		9B. DATED (SEE ITEM 11)	
		X		10A. MODIFICATION OF CONTRACT/ORDER NO. EP-W-16-015 68HERH19F0001	
				10B. DATED (SEE ITEM 13) 10/03/2018	

**11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS**

☐ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers ☐ is extended. ☐ is not extended.  
Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods: (a) By completing Items 8 and 15, and returning \_\_\_\_\_ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or electronic communication which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGEMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by letter or electronic communication, provided each letter or electronic communication makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)  
See Schedule Net Decrease: -\$890.04

**13. THIS ITEM ONLY APPLIES TO MODIFICATION OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.**

CHECK ONE	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.
	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation data, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).
	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
X	D. OTHER (Specify type of modification and authority) EPA-B-32-103 - LIMITATION OF GOVERNMENT'S OBLIGATION

**E. IMPORTANT:** Contractor ☒ is not ☐ is required to sign this document and return \_\_\_\_\_ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)

DUNS Number: 038086125

The purpose of this modification is to de-obligate funding in the amount of \$890.04 from this task order.

TOCOR: Melissa Puchalski

LIST OF CHANGES:

Reason for Modification: Funding Only Action

Obligated Amount for this Modification: -\$890.04

New Total Obligated Amount for this Award: \$30,204.96

Incremental Funded Amount changed: from \$31,095.00 to \$30,204.96

Continued ...

Except as provided herein, all terms and conditions of the document referenced in Item 9 A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)		16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print) Michael C. Fox	
15B. CONTRACTOR/OFFEROR  (Signature of person authorized to sign)	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA  (Signature of Contracting Officer)	16C. DATE SIGNED 10/16/2019

<b>CONTINUATION SHEET</b>	REFERENCE NO. OF DOCUMENT BEING CONTINUED	PAGE	OF
	EP-W-16-015/68HERH19F0001/P00002	2	2

NAME OF OFFEROR OR CONTRACTOR  
WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS, INC.

ITEM NO. (A)	SUPPLIES/SERVICES (B)	QUANTITY (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)
	<p>CHANGES FOR LINE ITEM NUMBER: 1</p> <p>Obligated Amount for this Modification: -\$890.04</p> <p>Incremental Funded Amount changed from \$31,095.00 to \$30,204.96</p> <p>CHANGES FOR ACCOUNTING CODE:</p> <p>18-E1-53GS-000A04XPM-4183-1853PM8115-001</p> <p>Amount changed from \$31,095.00 to \$30,204.96</p> <p>Payment:</p> <p>RTP Finance Center</p> <p>US Environmental Protection Agency</p> <p>RTP-Finance Center (AA216-01)</p> <p>109 TW Alexander Drive</p> <p><a href="http://www2.epa.gov/financial/contracts">www2.epa.gov/financial/contracts</a></p> <p>Durham NC 27711</p> <p>Period of Performance: 10/04/2018 to 08/08/2019</p>				